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COMPUTERWORLD

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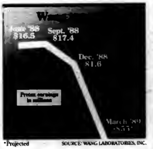
Wang Labs back to losing ways

BY PATRICIA KEEFE
CW STAFF

LOWELL, Mass. — After a stunning drop in profits was announced in January, Frederick Wang predicted a brighter picture ahead. Instead, Wang Laboratories, Inc. last week shocked customers and investors with an after-tax loss of $63.7 million for the quarter ended in March.

In an interview Friday, Wang, CEO and president, conceded there will be some layoffs as the company moves through an audit designed to downsize various departments over the next three to six months.

Wang's financial woes are just the latest in a steady stream of bad news emanating from the minicomputer maker in the last 12 months, including layoffs, late and bug-ridden products and most recently, last week's mainstreaming of the once independent Micro Systems Division. There is evidence that these losses could prove to be the final straw for weary Wang users.



*Projected SOURCE: WANG LABORATORIES, INC.

These recent events have "left much of Wang's installed base questioning its credibility as a vendor as well as its survivability," said Steven Wendler, an analyst at Gartner Group, Inc., a market research firm in Stamford, Conn.

"I'm disappointed by the financial results, not so much because I'm concerned but because my management becomes concerned about the vendor," said Matthew Gillman, president of the Chicagoland Wang Users Group.

In addition to the third-quarter results, Wang confirmed the resignation of MSD executive Graham Beachum, formerly vice-president of sales and marketing [CW, April 17].

Also departing MSD for a strategic planning role else-

Continued on page 116

DCA set to blur lines in bus war

BY PATRICIA KEEFE
CW STAFF

BOSTON — Digital Communications Associates, Inc. will announce a patented advance in board design tomorrow that may spell trouble for the Extended Industry Standard Architecture camp.

A source close to the company said the patent could result in a single board that supports both the IBM AT and Micro Channel Architecture buses.

Having lost its 3270 emulation crown to IBM last year, DCA is also expected to unveil a counterattack at a press conference here that is based on plans to open up and unbundle its bread-and-butter Irma product line.

The design reportedly allows for a flippable card that has edge connectors on either side — one for MCA and one for the AT bus. The adapter can also be flipped to either end of the card.

DCA reportedly has accounted for the electrical differences between the AT and Micro Channel architectures.

Although MCA boards come

Continued on page 6

Rules and regulations

IS under scrutiny from federal, state agencies

BY MITCH BETTS
CW STAFF

Call it creeping government intrusion or just creeping government efficiency. Either way, federal and state agencies are increasingly issuing regulations that directly affect the operations of private-sector information systems.

Next month, for example, the U.S. Department of Defense will issue regulatory standards for the manufacturing resource planning systems used by defense contractors.

There are several other examples — from the 1984 regulations that prohibit any bias in the displays of airline reservation systems to "regulatory surveillance" programs that give agencies on-line access to business computer systems (see chart page 115).

In the heavily regulated casino industry, "we have mandated report formats and many other requirements, so regulation is just a way of life here," said Karl J. Swanseen, MIS director at Trump Plaza Casino and Hotel in Atlantic City.

"There is not the slightest doubt that government regulation of computerized information systems is increasing," said Alan F. Westin, professor of public law and government at Columbia University in New York.

He said the increase is a natural result of the government's effort to apply its reporting, record-keeping, antitrust and other

Continued on page 115

IN DEPTH

25 and counting: A revolution lives on

This month marks the silver anniversary of IBM's 360 architecture, a revolutionary design that changed the way businesses used computers. In this special feature, Computerworld *looks at the impact of the 360 on computing professionals and how it laid the foundation for today's hardware and software industries.*

BY ROBERT MORAN
CW STAFF

When IBM introduced the 360 in April 1964, it shocked both corporations and competitors with the promise of a "general-purpose" machine. It also held forth a radical concept — that programs should outlive computers and be transportable across a vendor's entire line, recalls Frederic Withington, an independent consultant in New York who was then a consultant at Arthur D. Little, Inc. in Cambridge, Mass.

Along with the 360, IBM introduced the byte, microcode and systems programming — all previously unknown to the world of computing. Microcode was introduced to help conversions from the 1400 series to the 360. The 360's complicated and faulty operating system gave rise to systems programmers, many of whom worked in league with IBM for about four years to debug the operating system code.

Ashland Oil, Inc. in Ashland, Ky., ordered its 360 on the day the product was announced, recalls D. H. Howard, who today is manager of systems development at Ashland Oil's data processing subsidiary, Ashland Services Co. Prior to buying the 360, the company converted to an IBM 1410, the largest processor in the 1400 series. The company again converted about 1,000 applications from the

Continued on page 81

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NEWS

Quotable

"The fact that it's still here is a tribute to the equipment itself."

FRED D'ALO
NEW YORK CITY
PERSONNEL DEPARTMENT

On his site's 25-year-old IBM 360 system.
See story page 1.

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IN DEPTH

DEPARTMENTS

▲
Mergers are no picnic, says IS exec Bill Ledford, but you can survive. Page 69.

IS works its way into the heart of the legal profession. Page 21.
▼

PHOTOS: TOP, MANUELLO PAGANELLI; BOTTOM, ROBERT HOLMGREN

UPDATE

Prior to the divestiture of AT&T, only one telecommunications department in four reported to MIS. Today, that figure is three in four, spurred largely by the emphasis on data communications in large organizations. This change in reporting is *not* exactly what communications managers had in mind. What's burning them even more are the long-term efforts currently under way at many companies to basically unravel and redo much of what the data communications teams had assembled in the past decade. Watch for plenty of static.

EXECUTIVE BRIEFING

■ **Federal regulations are creeping** into more and more IS operations. Heavily regulated industries or those that do business with the government find increasing demands for government access to records, standardized output and oversight of system specs. While the regulations help bring some order to the industry, critics worry that the federal and state agencies are getting too nosy. **Page 1.**

■ **Users become vendors** as Westinghouse and American Express spin off IS-related subsidiaries. Westinghouse Communications Services will offer value-added transmission services and systems integration. American Express Information Services will sell into vertical markets and supply systems integration. Both will compete against the likes of EDS. **Stories on page 8.**

■ **Technology issues usually take a back seat** to work force problems in a merger. Poor morale threatens productivity and increases attrition. You need to have an action plan for integrating merged systems and an inventory of what's on hand. Approximately half of the organizations that go through a merger see budget overruns when they try to consolidate systems. Open communications channels and early planning are key to keeping a handle on those costs. But mergers may present an opportunity for IS to improve its status by driving the consolidation effort. **Stories begin on page 69.**

■ **Troubled times** for Prime, Wang and Control Data. A federal judge gives MAI Basic Four the green light to proceed with its hostile takeover bid for Prime, **page 4.** CDC folds its ETA subsidiary and cuts 3,100 jobs. That leaves only one U.S. supercomputer maker — Cray Research, **page 6.** Wang kills its fledgling Microsystems Division and reports a $55 million pretax loss, **page 1.**

■ **Users in the news:** Metropolitan Life learned a lesson from last year's Hinsdale, Ill., fire, and it is putting a satellite backup in place for its backbone network, **page 55.** A New Orleans museum uses a unique approach to handle one of the most complex database projects you can imagine: cataloging its collection, **page 41.** Competition forced automation for San Francisco's largest law firm. It moved from typewriters almost directly to VAXs, **page 21.**

■ **Coping with end-user hostility** was the challenge facing the new MIS director at a Kentucky distillery. Taking an active approach to an acquisition project and promoting a user-oriented mindset is helping to bridge the gap. **Page 63.**

■ **Innovative New York University program** teaches business professionals about information systems. Organizers say two-thirds of all corporate IS will be developed by end users by the early '90s. **Page 66.**

■ **Product briefs:** The next release of Computer Associates' Masterpiece financial applications software will incorporate one set of code that runs on multiple hardware platforms, including the VAX, AS/400 and IBM mainframes, **page 115.** DEC will unveil the first elements of its integrated network management system this year, but sources say the full-blown Enterprise Management Architecture is running late, **page 117.**

■ **Sophisticated computer-generated presentations** find a home in the corporate world as a result of the popularity of products such as Apple's Hypercard. **Page 41.**

■ **New technologies are getting low recognition,** according to a recent survey of 500 mainframe sites. Less than 10% of respondents say they understand terms like "object-oriented DBMS," "work group applications" and "reverse-engineering." Service and transportation sectors are revealed to be the most informed users. **Page 118.**

WHOOSH

Study urges corporate privacy laws

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — Most big corporations lack policies to prevent the misuse or disclosure of confidential data held in their personnel record systems, according to a study by David F. Linowes, a privacy expert at the University of Illinois who argued last week for federal privacy regulations to fill that gap.

Of the 126 corporations surveyed, 80% said they disclose employee records to credit granters. More than half do not inform their employees about the types of records kept on them or how those records are used and disclosed, according to the survey released last week.

Since voluntary efforts have been insufficient, a federal law is needed to establish uniform information-handling practices that protect individual privacy, Linowes concluded.

The professor said there has been only spotty progress on the privacy front since 1977, when he chaired the U.S. Privacy Protection Commission. The commission stopped short of mandatory safeguards for business, instead urging businesses to voluntarily adopt privacy policies and fair information practices.

"In view of our findings, however, it can be argued that new incentives for action should now be considered," the report said.

Medical disclosures up

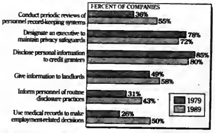
The survey found a sharp increase in the number of companies that use medical information in making employment-related decisions such as job promotions, even though "medical information can be misunderstood by an uninformed layman," Linowes said. In 1979, only 26% of the companies used medical data; now 50% do, probably because of increased concerns about drug use, AIDS and smoking, he said.

Moreover, 42% of the responding corporations said they find it necessary to collect information without informing the individual. More than half of the companies use private investigators to collect or verify information concerning their employees.

"The fact that four out of five companies disclose information to credit granters apparently is a reflection of our credit-hungry society, where extenders of credit are increasingly hard-pressed to evaluate creditworthiness," Linowes said. "However, if this kind of liberal cooperation with credit granters is to prevail, the subject individual should be informed."

Little progress on the privacy front

A survey on the privacy policies of 126 big businesses shows that 80% continue to disclose personal data to credit granters



SOURCE: UNIVERSITY OF ILLINOIS

CW CHART: FRANK C. O'CONNELL

Prime marches on, augments Unix lineup

BY ROSEMARY HAMILTON
CW STAFF

Prime Computer, Inc. tried a business-as-usual approach last week, announcing a series of new products that included a low-end proprietary system, midrange Unix offerings and a set of communications tools.

Some users contacted said the announcement helped boost their belief that Prime's product line has a solid future. But two other users said last week that they had already made plans to switch to Digital Equipment Corp. "The message [from Prime] is that they are going to be around," said James Gaspers, MIS coordinator for the city of Scottsbluff, Neb., of last week's announcement.

At week's end, Prime's status was still in limbo. Earlier last week, the U.S. federal court in Boston ruled that the injunction placed on MAI Basic Four, Inc.'s tender offer will remain until audited financial information on the firm was provided to Prime shareholders (see story at right).

The products, according to Prime, show the company's commitment to both its proprietary line, the 50 series, and a Unix product line. In addition, the communications tools, including Sun Microsystems, Inc.'s Network File System (NFS), show the company's intention to improve coexistence between the two lines.

With the introduction of the 2850, Prime has expanded the 50 series to an eight-model product line. It comes in as the second smallest 50 series with 60% more performance than the 2455, which will remain the low end of the line.

The Unix systems come from a deal announced last week between Prime and Sequent Computer Systems, Inc. Prime intends to market the Sequent Symmetry line as database servers; the Sequent products will also serve as the midrange and high-end models to Prime's Unix line. In addition to Sun's NFS, Prime plans to offer Apollo Computer, Inc.'s Network Computing System and IBM Systems Network Architecture LU6.2 protocol on the 50 series.

But some users have already moved beyond Prime. At General Semiconductor Industries, a division of Square D. Co., the decision to leave Prime for DEC was made even before the MAI/Prime fight commenced, according to Charles Sheffer, information systems manager. Similarly, Florida Power & Light Co. in Miami has a Prime-to-DEC conversion under way.

Prime's own system

The latest member of the Prime 50 series features 2.6 MIPS

• Configurations	5 models
• Starting price	$46,500
• Availability	June
• Main memory	8M to 32M bytes
• Storage	258M to 1.3G bytes
• Operating system	Prime's proprietary Primos
• Users supported	Up to 64
• MIPS	2.6

SOURCE: PRIME COMPUTER, INC

CW CHART: JOHN YORK

MAI showdown nearing

BY CLINTON WILDER
CW STAFF

BOSTON — Prime Computer, Inc. and MAI Basic Four, Inc. moved one step closer to their ownership showdown last week when a federal judge said MAI can proceed with its tender offer after disclosing certain financial data requested by Prime.

Meanwhile, no rival bidders emerged for Prime's offer to sell itself to a friendly buyer, increasing the possibility that the company's fate will be decided by proxy fight at Prime's June 14 annual meeting.

Both sides claimed victory in last week's ruling by U.S. District Judge David A. Mazzone. Mazzone ruled that he will lift the injunction against MAI's unsolicited $20 per share offer 10 business days after MAI sends audited 1988 financial statements of fiscal backer Drexel Burnham Lambert, Inc. to Prime shareholders. MAI said the statements could be mailed as early as May 1.

If and when Mazzone lifts the injunction, that will give the green light for MAI to proceed in Delaware Chancery Court with its legal effort to strike down two of Prime's takeover defense provisions. The Delaware judge has refused to proceed with that case while the Massachusetts injunction is in place.

Delaware face-off

MAI wants the Delaware court to declare invalid Prime's so-called poison-pill provision that allows Prime shareholders to buy shares of Prime and the acquiring company at half of their market price during a hostile takeover. MAI is also trying to remove Prime's employee protection plan that provides severance pay or so-called golden parachutes for executives laid off by the hostile acquisitor.

Prime chose to focus on the financial disclosure part of Mazzone's ruling, claiming that full disclosure of Drexel's financial position will convince shareholders that Drexel cannot adequately bankroll the takeover.

"We've requested this all along for five months," said Prime spokeswoman Paula Levis. "To make an informed decision, you need accurate and complete information." Up to this point, MAI had only supplied unaudited results from privately held Drexel Burnham.

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[1] IBM Journal of SAA [2] DATAPRO survey, August 1988, companies with sales over $10 million [3] Donaldson, Lufkin & Jenrette report

U.S. SEMINAR SCHEDULE

AZ	Scottsdale	Apr 11af May 9 Jun 13a
	Tucson	Apr 18 Jun 20
CA	Costa Mesa	Apr 25f May 18am Jun 22f
	La Jolla	Apr 13a Jun 15am
	Los Angeles	Apr 20af Apr 25g May 11cm Jun 14amp
	Ontario	Jun 8cm
	Redwood City	Apr 27g
	Sacramento	May 16r
	San Diego	May 16
	San Francisco	Apr 25ar May 18ft
	San Jose	Apr 12ar
	Santa Barbara	May 2
	Santa Clara	May 11cr
	Universal City	Apr 6cfm
CO	Colorado Springs	May 2r
	Englewood	Apr 18ac Jun 6fr
CT	Farmington	Jun 15
	Stamford	Jun 8fr
DC	Washington	Apr 13g May 18g Jun 15g
GA	Atlanta	Apr 26m
	Savannah	Apr 27f
IA	Des Moines	Apr 20t
ID	Boise	Apr 13fr
IL	Chicago	Apr 18afp Jun 14cf
	Rockford	Apr 11
	Springfield	Apr 20r
IN	Indianapolis	Apr 25r Jun 7fp
KS	Wichita	May 4r
KY	Lexington	Jun 2*
	Louisville	Apr 4f
LA	Baton Rouge	Apr 21c
	New Orleans	May 5t Jun 16c
MA	Boston	Apr 20fm Jun 6cf
	Burlington	Jun 13r
MD	Baltimore	Apr 12cf
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ME	Augusta	Apr 18t
MI	Dearborn	Apr 4f
	Grand Rapids	Jun 6f
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	Buffalo	Jun 6fm
	East Syracuse	Jun 15f
	Melville	Apr 11am May 10r Jun 13ac
	New York City	Apr 5pr Apr 19f May 3t May 17c Jun 14f
	Rochester	Apr 13p Jun 7at
	Smithtown	May 9g
OH	Beachwood	Apr 5fr Jun 13cr
	Cincinnati	Jun 29mr
	Columbus	Jun 15c
OK	Oklahoma City	Apr 19c
	Tulsa	Jun 15r
OR	Portland	Jun 13apt
PA	Harrisburg	Apr 6
	King of Prussia	May 26c
	Philadelphia	Apr 10fm Jun 19afp
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	Houston	Apr 6cf May 4fr Jun 8fm
	San Antonio	May 12c
UT	Salt Lake City	Apr 26c Jun 14p
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COMPUTERWORLD

CDC supercomputer swan song

BY ELLIS BOOKER
CW STAFF

MINNEAPOLIS — Control Data Corp., the company that established the supercomputer industry two decades ago, abruptly left that market last week, announcing the immediate folding of its money-losing supercomputer subsidiary, ETA Systems, Inc.

The move ended a rocky history at the six-year-old supercomputer maker, which had sold a total of 34 of its supercomputers, and leaves competitor Cray Research, Inc. as the only supercomputer maker in the U.S.

Broad impact

Users of more than 2,000 systems are watching CDC's fortunes

System size	*Year-end 1988 worldwide installed base*
Medium (such as Cyber 932)	1,321
Large (such as Cyber 960, 962, 992, 994)	438
Very large (such as 180-990E, and ETA 10)	266

SOURCE: INTERNATIONAL DATA CORP.
CW CHART: FRANK C. O'CONNELL

More broadly, however, the demise of ETA Systems points to troubles at CDC itself, which has taken more than $1 billion in write-offs since 1984 and showed a mere $1.7 million in earnings on revenue of $3.6 billion last year.

The restructuring calls for cutting 3,100, or 9.1%, of CDC's worldwide work force. The layoffs will apply to CDC'a Cyber mainframe computer systems and services as well as CDC corporate staff. CDC would not comment, however, on which departments will feel the deepest cuts. CDC spokesman Frank Ryan said the cuts would apply "across the board," but, be added, "We haven't broken them out."

About 800 people were let go April 17 at the St. Paul, Minn., plant where ETA Systems made its ETA 10 line of supercomputers, which included the low-end air-cooled Piper and the high-end liquid nitrogen-cooled series.

The $350 million charge for discontinuing ETA Systems was the major element of a $490 million restructuring plan disclosed April 17 by CDC.

"We ran out of time and money," said CDC Chairman and Chief Executive Officer Robert M. Price at a press conference April 18 at the Hotel Intercontinental in New York. "We are and have been a mainframe niche player. Now, there is an opportunity to concentrate on mainframes and add value to markets we already serve." Those markets include the goverment, automotive industries and utilities.

Discontinuing ETA Systems, which sustained a $100 million operating loss last year alone, would mean a profitable second half for CDC, Price predicted. But be conceded that CDC "won't be profitable for the full year."

The installed base of ETA 10s includes 27 of the air-cooled and seven of the liquid nitrogen-cooled machines, according to CDC. Another half-dozen or so machines are on order, the company said. For its Cyber mainframe business, CDC claims an installed base of 1,400.

Support will continue

Pledging to support its supercomputer customers, CDC has retained a small contingent of former ETA Systems personnel for this purpose, said Sharon Studer, vice-president of marketing at CDC'a computer products division. The support group will be led by Homa Firoustash.

CDC is evaluating how to incorporate ETA technologies into its Cyber mainframe line, in particular the CMOS technology and liquid-nitrogen immersion cooling system. But no firm decisions had been made about what, if any, technology will be transferred into the Cyber line, Studer said.

Analysts, however, are doubtful whether this can be done or whether CDC can accomplish its expressed wish of selling ETA technology to others.

Omri Serlin, president of Itom International, Inc. a research and consulting firm in Los Altos, Calif., said he believes the closure of the company is a bad sign. CDC "has tried for years to get people interested," be said, noting that closing the company indicates that "there were no buyers."

Serlin's figures indicate that Cray has the clear lead in the supercomputer business worldwide, with about 240 supercomputers installed to ETA System's 34. Three Japanese companies — NEC Corp., Fujitsu Ltd. and Hitachi Ltd. — supply the remainder of the 300-plus supercomputers installed in the world.

The technological innovation of the ETA line was in its use of a 44-layer, single-board CPU using Honeywell, Inc. CMOS chips. Sid Fernbach, a private consultant in Alamo, Calif., praised ETA for this design but was critical of ETA's EOS operating system.

"The operating system stunk," he said. "There wasn't an operating system ... they were working on it and you might have gotten it by the year 2000." An AT&T Unix System V implementation brought out last year was a better approach, and a number of ETA 10 users had already opted for it, he said.

ETA users face future

Users of ETA supercomputers are grappling with last week's decision to shut down operations.

"We knew CDC was having trouble ... but we didn't know the extent," said Robert Johnson, vice-president of research and graduate studies at Florida State University in Tallahassee. Two weeks ago, the university's Supercomputer Computations Research Institute upgraded to the first — and probably last — ETA 10G, a four-processor, liquid-cooled supercomputer operating at seven nsec.

The university has been a CDC customer for 25 years. "Sure we're concerned," Johnson said. "Any time a company has a major upheaval like this, you have concerns about the future. . . I hope CDC's business is viable."

The John von Neumann National Supercomputer Center, run by the Consortium for Scientific Computing, Inc. in Princeton, N.J., operates an eight-processor ETA 10, a four-processor ETA 10 and two Cyber 250s. In a statement last week, the center said it will support its 1,300 ETA 10 and Cyber users but will evaluate other supercomputer vendors.

ELLIS BOOKER

DCA

FROM PAGE 1

in varying lengths and are a little shorter than PC AT cards, laboratory testing technicians at Infonetics, a market research group in Santa Clara, Calif., said it is possible to create one card that will fit into both machines.

"This has less of an impact on coaxial boards and more of a long-term impact for the board industry as a whole — if it decides this is a good idea," one source said. "They may not like the idea of selling half as many boards, but if users demand it, board vendors will have to support it."

Modem and memory boards are examples of cards that ship in large volume and that users tend to take with them as they migrate to different machines. "Think of what this means for users. Right now, when they consider upgrading to a new system, they have to worry about whether they'll have to buy all new cards," the source said.

But Marty Alpert, chairman of Cumulus Corp., a Cleveland-based MCA peripheral maker, predicted little interest from either users or vendors. Suppliers may balk at added manufacturing costs and licensing fees, Alpert added. "It also takes away from the elegance of MCA, since there are no switches to set and nothing to configure," he said.

As for the revamped Irma strategy, it is targeted at users who have already committed themselves to IBM hardware or software, a source said. DCA is expected to announce support for IBM'a 3270 Hardware Interface. "A more flexible approach will help DCA at least get in the door," the source said.

Irma could use a boost right now. Faced with an IBM sales blitz, 1988 shipments were down compared with 1987, according to recent market reports. "I have one account that plans to chuck 2,000 Irma boards into the sea," said Frank Daubeck, president of Communications Network Architects, Inc. in Washington, D.C.

Microsoft serves up OS/2 host connectivity

BY PATRICIA KEEFE
CW STAFF

SANTA CLARA, Calif. — The good news for OS/2 LAN Manager users is that Microsoft Corp. last week announced IBM host and wide-area connectivity backed by some big names in software. The bad news is that Version 1.0 will not be available until the fourth quarter.

But that is OK with some users. Just knowing they can look forward to cost savings either by avoiding IBM'a OS/2 Extended Edition bundling approach or by eliminating gateways is enough for now, they said.

George Roukas, a manager at a Fortune 50 financial services firm, is looking forward to making an end run around costly gateways. Roukas predicted be can save almost $30,000 by using an IBM Systems Network Architecture (SNA) server instead of a gateway.

Microsoft, Digital Communications Associates, Inc. (DCA) and UK-based Data Connections Ltd. (DCL) jointly unveiled the DCA/Microsoft Communications Server, also called Comm Server [CW, April 17].

OEMs will get Comm Server via Microsoft, while DCA will sell it to end users. DCL, which is providing the LU6.2 support, is working on a Unix-compatible version. Microsoft General Manager Adrian King declined to comment on that product.

Comm Server will reportedly allow DOS and OS/2 workstations on LAN Manager networks to access multiple hosts and gateways via a range of SNA-based services. Asynchronous support will be bundled with an OS/2 Presentation Manager interface into Version 1.1, due out the second quarter of 1990.

Also provided are key IBM interfaces such as Advanced Program-to-Program Communications, Server-Requester Programming Interface and Emulator High-Level Language Application Program Interface. Other features include dynamic routing, multiserver administration, hot backup and IBM Netview support.

Developers rallying around Comm Server include Cullinet Software, Inc., Information Builders, Inc., Ashton-Tate Corp., Micro Decisionware, Netwise, Inc., Micro Tempus, Inc., Spectrum Concepts, Inc., DB/Access, Inc. and Consumers Software, Inc.

If many LAN Manager OEMs license Comm Server, users and developers could benefit from a fairly standardized approach to OS/2 host connectivity. "With an open architecture, you can pick and choose the product that best suits your needs," said Karl Thornton, manager of Philadelphia-based Smith Kline Beckman Corp.'s Information Development Group.

It is precisely that freedom that attracts users like Randy Lee, a systems specialist at System One Plan Services in Roseville, Minn. Along with his peers, be objects to OS/2 Extended's packaging: "You have to pay too much to get the whole package, and you may not need all of it."

West Coast correspondent Patrick Waurzyniak contributed to this article.

WNL
TO FLY TO SERVE

NEWS SHORTS

Apollo sale takes shape

And so it begins. Hewlett Packard Co. said last week that it had begun its tender offer for all the shares of workstation pioneer Apollo Computer, Inc. The acquisition, agreed to earlier this month, is conditional upon HP tendering a majority of Apollo shares. The offer expires midnight May 15. HP created a subsidiary, Neptune Project, Inc., to handle the acquisition.

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Tariff 12 call irks vendors

Network equipment vendors last week blasted the Federal Communications Commission's decision allowing AT&T to bundle transmission and equipment for custom networks under Tariff 12. The Independent Data Communications Manufacturers Association said the FCC order failed to ensure that systems integrators competing with AT&T can get the same Tariff 12 services and discounts for their customers.

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Amperif eyes new worlds

Amperif Corp., a longtime supplier of disk drives in the former Sperry Corp.'s market, said last week it will sell a fault-tolerant storage system into the Burroughs Corp. side of the Unisys Corp. market. The 8200-30 device offers 32G bytes of disk storage, 2.3G bytes of solid-state memory and 72M bytes of mirrored cache. The $50 million Amperif expects to bring the technology to the IBM market within two years.

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Harris wins NASA systems bid

The National Aeronautics and Space Administration has selected Harris Corp. for a $200 million contract to upgrade real-time systems at the John F. Kennedy Space Center in Florida. The systems will handle processing for the launch of space shuttles and the space station Freedom.

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Fiber cable reaches the Orient

Transmissions started flowing last week over the first fiber-optic cable to span the Pacific Ocean. The cable, which can handle 40,000 simultaneous transmissions, connects the U.S. to Japan and Guam. The first call, a video transmission, was placed by the New York Stock Exchange to the Tokyo Stock Exchange. Thirty companies own the $700 million facility.

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Leading Edge resurfaces

Some thought it was gone for good, but beleaguered Leading Edge Products, Inc. has resumed shipping its products to computer dealers. Leading Edge, which has filed for bankruptcy protection, hopes to recapture its "leadership role in the PC-compatible market," a company executive said.

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Airlines try discount strategy

Delta Air Lines and American Airlines last week reduced the per-share price for early buyers into their proposed global computer reservation system partnership. To stimulate investor interest, the carriers slashed the price for each 1% share of the venture from $20 million to $15 million for the first 20 shares.

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Amdahl stakes performance claim

Amdahl Corp. last week announced what it claims is the biggest uniprocessor mainframe. The vendor said the $3.8 million Model 350 runs at about 35 million instructions per second. Amdahl also announced the dual-processor Model 500 and triprocessor Model 1100.

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New Focus version due

Information Builders, Inc. in New York will announce a version of its popular Focus fourth-generation language for the Digital Equipment Corp. VAX tomorrow. Release 6 will include enhancements for application developers and end users, as well as improvements to the Focus database management system.

Amex carves off its info unit

BY ALAN J. RYAN
CW STAFF

NEW YORK — American Express Co. last week spun off its information operation, which had been part of its travel services company, to create a fifth major operating unit.

The Data Based Services Group, formerly part of American Express Travel Related Services Co., was spun off and renamed American Express Information Services Co. (ISC) to affirm the company's "ongoing commitment to be a major force in the industry," said James D. Robinson III, chairman, president and chief executive officer at American Express. He said the discrete businesses that make up ISC are "well-positioned to satisfy the rapidly expanding need for smarter and faster ways to manage and communicate information."

The breadth of its business will make ISC competitive with companies such as Electronic Data Systems Corp., a spokesman said, adding that "we define our competitors as the individual firms that our individual companies are competing against in their defined markets."

The new company employs 10,000 people in five businesses: First Data Resources, WATS Marketing Group and Cable Service Group, all based in Omaha; Integrated Payment Systems in Englewood, Colo.; and Health Systems Group in St. Louis.

An American Express spokesman said last week that no jobs would be eliminated through the restructuring but that some new top-level managers may be added at headquarters to oversee ISC. The firm has also reached an agreement in principle to acquire The Shareholder Services Group, the domestic transfer agency of The Boston Co., a wholly owned subsidiary of Shearson Lehman Hutton, Inc.

American Express' Duques
will head up the new unit

Over the past decade, American Express has been expanding its commitment to information services, the spokesman said. During the past few years, the units that make up ISC have grown through acquisitions and internal expansion.

Heading up the unit, which will be headquartered here, will be Ric Duques. He formerly served as president and chief executive officer of the Data Based Services Group, which he joined in 1987. His title will remain the same.

Westinghouse to offer turnkey network service

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — Westinghouse Electric Corp. officially crossed the line from elite user to fledgling network vendor last week. The Pittsburgh-based company said its communications unit will provide a variety of turnkey networking services to other medium-size and large corporations.

The pioneer user formed Westinghouse Communications Services, Inc. as a subsidiary that will provide value-added transmission services — such as electronic data interchange (EDI) — using the sophisticated Westinghouse Information Network as well as network management, design and systems integration services.

In some respects, Westinghouse will be competing with such established vendors as Electronic Data Systems Corp., IBM Information Network, Telenet Communications Corp. and General Electric Co.'s GE Information Services unit.

However, officials stressed that, in addition to transmission, Westinghouse will offer user-oriented, unbiased management services ranging from strategic planning to equipment selection, installation and training.

Westinghouse's new unit
will be led by Edison

Westinghouse follows several other corporations, such as Sears Roebuck and Co., Weyerhaeuser Co. and The Williams Cos., that are trying to make a profit by selling outsiders their in-house capabilities.

Westinghouse Communications gets its MIS expertise from David M. Edison, who heads a staff of 300 and is responsible for the $60 million Westinghouse network. Edison was director of the company's corporate information and communications systems and has assumed the title of executive vice-president at the subsidiary.

Officials said Westinghouse has one of the largest digital voice/data networks in the world, capable of providing long-distance voice, packet switching, electronic mail, IBM Systems Network Architecture networks and private lines for data. They claimed the network has high reliability.

Edison said the network will be enhanced to include Integrated Services Digital Network, automatic number identification and switched 56K bit/sec. transmission capabilities.

The Westinghouse unit has already accumulated sales of $100 million, with revenue derived from a mixture of Westinghouse divisions, customers gained by acquisitions and new customers, according to Harlan J. Rosenzweig, president of the unit. He said the subsidiary expects to reach $500 million in revenue by 1994.

At a press conference here, the apparently well-heeled Westinghouse offspring announced its second acquisition and hinted at more to come. Westinghouse Communications said it reached an agreement to acquire Communications Design Corp. in Stamford, Conn., which supplies IBM mainframe-based software for network management.

Westinghouse previously acquired Harbinger Computer Services, Inc. in Atlanta to bolster its EDI capabilities.

Howard Anderson, managing director of The Yankee Group, a Boston consulting firm, called Westinghouse the "most innovative user in the country" and endorsed the new venture at the press conference. He called it the fourth generation of networks — "a user-defined network provider" — which follows previous generations of common carriers, value-added network vendors and private networks.

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Desq patent muddies windows

BY DOUGLAS BARNEY
CW STAFF

SANTA MONICA, Calif. — First, copyrights threatened purveyors of too similar software. Now a patent gained by Quarterdeck Office Systems, Inc. may rein in firms such as Apple Computer, Inc., Microsoft Corp. and even IBM, which sell systems that perform multitasking and windowing of off-the-shelf applications.

The Quarterdeck patent joins a growing legion of software patents that have been awarded or filed. The most disturbing impact of such patents is the possibility of a cease-and-desist court order that would actually prevent the use of infringing products.

"Any patent gives the patent holder the exclusive right to produce, market and distribute the patented matter. They can stop the users and the vendors," explained Jay Westermeier, an attorney with Fenwick, Davis & West, a Palo Alto, Calif., law firm specializing in computer law.

Some 6.5 million machines in the U.S. currently have windowing software, said Nancy McSharry, a software analyst at Framingham, Mass.-based market research firm International Data Corp. Many of these packages work with off-the-shelf software and could be in conflict with the Quarterdeck patent.

Quarterdeck applied for the patent in 1984 after developing Desq, its first product. The patent applies largely to operating environments that perform multitasking and windowing of applications that were originally designed to be single-tasking.

The patent awarded last week may also cover other environments such as OS/2 Presentation Manager or Open Look that require developing applications specifically for multitasking and windowing, according to Gary Hecker of Hecker & Harriman, which represented Quarterdeck.

Products that may directly conflict with the Quarterdeck patent include IBM's Topview and 3270 Control Program, Microsoft's Windows, Apple's Multifinder and AU/X, Digital Research, Inc.'s Concurrent DOS, Software Link's PC-MOS and a host of Unix environments that allow DOS applications to run as tasks, analysts said.

While Apple declined to comment, Microsoft defended its Windows, already the target of a copyright-infringement suit filed by Apple. Quarterdeck "has not been in contact; we have no reason to believe that we infringe," said Sarah Charf, public relations manager at Microsoft.

Whether these products infringe may depend upon the particular methods used. According to Westermeier, it is the methods rather than the results that are protected by patents.

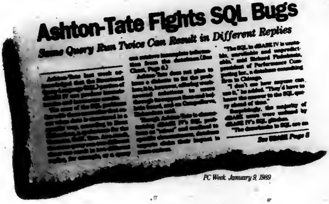
What now?

Quarterdeck officials are pleased with the patent but do not yet know what to do with it. "We are looking at what other products would be using the technology," said Theresa Myers, Quarterdeck's president.

While Myers explained that hers is not a "litigious" company, "we would like to be compensated for our invention." Hecker pointed to licensing fees as a key focus, a move that could drive up the price of multitasking software.

These multitasking products have become increasingly popular because users can get more bang from existing applications and do not need to upgrade an entire suite of software. With the delay of new operating systems such as OS/2, the popularity of these systems continues to grow, analysts said.

Other patents abound. Apple holds several, including one on pull-down menus, and earlier this year Advanced Software received a patent for document comparison. According to Westermeier, there are more than 1,000 software patents currently in the pipeline.



Object-oriented standards group adopts HP's New Wave

BY AMY CORTESE
CW STAFF

The Object Management Group (OMG) was officially launched last week with the lofty goal of promoting a standard object-oriented applications environment that will integrate applications and data across networks.

Such a standard would mean more flexibility for users in choosing operating systems and allow vendors to develop better quality software more quickly, according to the group.

Analysts generally applauded the effort, saying that a standard for managing objects is needed. Object-oriented design, which combines data with application code, has been heralded as a way of simplifying software development and use.

The Westboro, Mass.-based group said that it will adopt Hewlett-Packard Co.'s New Wave environment, independent of user interface, as a working model from which to build.

New Wave in its current form is an MS-DOS-based product, but HP disclosed that Unix and OS/2 versions will be forthcoming in the first half of this year. The company demonstrated a prototype networking technology, which will be part of the multiuser versions that allow objects to be shared across a network.

Christopher Stone, group manager of work group software at Data General Corp. and acting executive director of the OMG, said the group was "formed in time to establish and actively influence the future direction of this critical technology."

Members, numbering nine and including American Airlines and Sun Microsystems, Inc., endorsed New Wave's object management facility. Some indicated they would be coming out with products embodying New Wave in the next year.

Canon, Inc., the only Japanese member, said it will adopt New Wave for the Canon AX personal computer and promote New Wave as a standard in Japan.

Stone said the effort was initiated more than a year ago when DG and Prime Computer, Inc. approached HP about standardizing on New Wave. However, the Apple Computer, Inc. suit implicating New Wave's graphical user interface stalled the effort until recently, when the firms were satisfied it was only the user interface portion that was in contention.

OMG officials said that membership discussions are taking place with other companies, and it expects to add new members. However, spokesmen at IBM and Digital Equipment Corp. could not determine who at their companies were involved in these discussions. A spokesman for Microsoft Corp. said that the company is on a parallel track and for the moment is "an interested spectator."

COS to usher in certification program for OSI

BY ELISABETH HORWITT
CW STAFF

WASHINGTON, D.C. — The Corporation for Open Systems (COS) is expected tomorrow to unveil its long-awaited third-party Open Systems Interconnect (OSI) certification program — a boon to users who want some assurance that a product billed as OSI-compliant will actually work with other OSI-compatible products.

The COS Mark Program is "significant for us because it's the first time certification testing has been available for the Manufacturing Automation Protocol 3.0" standard, said Michael Kaminski, manager of communications/MAP at General Motors Corp. GM will require that its computer and network suppliers earn the mark that designates OSI compliance when the tests become available, he said.

The COS Mark will not guarantee interoperability, because it is impossible to test for all situations, particularly error-handling, said Jan Aminoff, manager of the COS program.

Vendors who earn the Mark must sign agreements to try to fix any interoperability problems that involve their products at a customer site, COS said. If the vendors cannot resolve the problem, the user can turn to COS' "interoperability analysis service," a COS spokesman added.

COS hopes tomorrow to have completed Mark certification for products from Hewlett-Packard Co., Concord Communications, Inc. and Motorola, Inc., Kaminski said. The vendors took part in a pilot Mark program limited to MAP protocols from the transport layer down to the 802.4 Token Bus, sources said.

Retix is one of several vendors that are close to certification under another pilot program for OSI 802.3 Ethernet products, according to Retix President Andy de Mari.

Testing for higher level OSI protocols, including CCITT's X.400 and MAP's FTAM, will be available later this year, sources said.

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COMPUTERWORLD

A brave new networking world

Editor's note: This is one in a series of profiles of nominees for the Computerworld Smithsonian Awards, *recognizing individuals and organizations that have achieved outstanding progress for society through the use of information technology. The awards will be presented in a ceremony held June 20 in New York.*

BY PATRICIA KEEFE
CW STAFF

WASHINGTON, D.C. — The capacity of the global village to shape world opinion and diplomatic policy is reaping concrete results for the U.S. government, which has led efforts to mold international telecommunications into an inexpensive instrument for the interactive exchange of information.

"You could make the philosophical argument that *glasnost* was in part fostered by the revolution in communications," said Richard Caldwell, director of the Office of Networks and Communications for the U.S. Information Agency's (USIA) Television and Film Service (TFS). "The Soviets haven't been able to keep [information from the West] out, so they've had to deal with it."

The ability of satellite-based broadcasts to blast information beyond international borders, such as USIA's Worldnet, has sprouted a forest of satellite dishes across the Eastern European landscape.

"Those dishes are an indication to me that these countries have reconciled themselves to life in the 20th century," Caldwell said.

Whether propaganda or information, interviews with U.S. officials and other citizens zapped across the live, global television service have produced tangible results.

- In November 1983, negative world opinion was reversed following the Grenada military action after a live telepress conference linking then-United Nations Ambassador Jeane Kirkpatrick, Caribbean prime ministers and European journalists. This event was the impetus for developing Worldnet.
- In December 1983, 17 journalists worldwide, then-President Ronald Reagan and West German Chancellor Helmut Kohl were linked live with U.S. and German shuttle astronauts.
- Following the Chernobyl reactor failure in May 1986, Worldnet televised a live symposium of internationally regarded nuclear safety experts.

USIA is charged with providing the global public with a deeper understanding about the U.S., particularly its role within the international community. Shackled by limitations in funding and extremely high telecommunications costs, the organization set out five years ago with a mandate to come up with a more sophisticated but cheaper way to spread the U.S. gospel to even more people.

Happily married

Worldnet has successfully married satellite technology and television in an effort to broadcast programs, including live video press conferences, around the world in seconds. Officially launched in April 1985 with service to Europe, the network today transmits 45,000 hours of programming a year.

Virtually bypassing commercial systems, Worldnet has saved USIA staggering sums of money. For example, Caldwell noted that TFS' total budget is $38.5 million.

Approximately $12 million of that sum supports the satellite network vs. the $300 million he estimates a commercial approach would cost.

Henry Hockeimer, USIA's associate director of management, estimates total savings in telephone costs for 200 U.S. posts to be about $7 million. Also, Worldnet enables USIA to transmit to as many European sites as desired for $336 an hour rather than paying a commercial carrier $14,750 an hour to reach five sites.

Broadcasting via commercial systems is fraught with difficulties, Hockeimer said. "It takes a long time to confirm orders, it's very labor-intensive, costs are high, and there is no guarantee that needed earthstations and satellites will be available," he said.

The network was designed and built by a team of 15, led by Caldwell and Hockeimer, formerly the chief executive officer at Ford Aerospace Co. Completely open, it uses a combination of seven leased satellite transponders and microwave technology to beam audio and full-band video to a necklace of 168 satellite dishes located in U.S. consulates, missions and embassies worldwide.

The leasing of transponders from satellites owned by Intelsat, an international organization representing 105 countries, has led to greater freedom in space and terrestrial communications, the USIA claimed. "They can't keep this technology out, so they had to adapt to it," Hockeimer said.

The posts are equipped with one-way video and two-way audio, allowing two languages to be transmitted at the same time.

Many of the more than 1,100 interactive programs that have been broadcast to date are in turn made available to local cable and national television stations. In fact, Caldwell said that many European cable providers rely on USIA-generated programming to fill empty holes in their schedules.

Worldnet's got the *the whole world in its hands*

IBM moves away from indirect sales support

IBM WATCH

ROBERT P. TASKER

As the dust settles from IBM's most recent reorganisations, users and employees are feeling the bite of a leaner, more aggressive firm.

MIS managers who are less than totally committed to IBM are among the first to feel the cold winds of change.

For example, managers at two large MIS operations recently broke tradition by installing equipment from a variety of vendors. As a result, they are experiencing far less IBM attention and indirect assistance than previously. IBM hand-holding was a common practice in the past.

Another company, which is considering acquiring a third-party direct-access storage device, was told that in the event of problems with their mixed systems, IBM could not guarantee the current level of support.

The reasons for this change are twofold. The overall work force reduction, from 410,000 two years ago to 365,000 today, is partly to blame. But the larger issue is a strategy shift that is applying more resources to direct sales and less to indirect sales and support.

Further, the reduced number of indirect sales and inquiry support personnel within the company's 14 regional sales districts are being assigned primarily to accounts where they are most likely to generate quick revenue — the most "loyal" IBM installations.

Automated answers

Managers also encounter the reduced number of accessible IBM support personnel when they call and ask the vendor for advice. Instead of speaking with an IBM representative, users are now frequently referred to a bibliography of products and services or possibly to IBM Link. They most be prepared to do their own research and determine exactly what their needs are before calling.

Part of the reason for this new approach is that IBM support employees now have their performance ratings and financial rewards based directly on sales levels. There simply isn't time to schmooze with anyone less than a loyal customer or a buying prospect.

Other effects of the new regime include the robust resource flow of people and products to sites and organizations that produce hot-selling products like the Application System/400.

Concurrently, as unpopular products begin to lose ground, their development staffs lose resources. This was the case with the 9370 produced by the Enterprise System Division, headed by Carl Conti. The division is migrating staff and budget dollars away from senior personnel who are working on 9370 products.

The poor reception and low sales volumes of the 9370 — a project conceived before the 1987-1988 reorganisation — was because of misjudged markets and unrealistic expectations on behalf of both prospective users and IBM senior management. The net result for purchasers of 9370 machines is less development resources, fewer new models and fewer new software applications. Just the opposite is true for users of the AS/400 family.

Responsibility for product direction is now delegated to a lower level on the organizational chart than ever before. The result should be positive for the MIS managers as the chain for decision making and interpretation of market requirements is shorter, and the reaction time is quicker.

Essentially, people at the director level and one step below, reporting to a general manager or assistant general manager, now have much broader authority over the direction and resource expenditure for specific product groups.

Sing for your supper

In base terms, director-level personnel are being told by top management, "you get to eat what you catch." Well-pitched, well-designed, successful products (those that sell) will receive the bulk of both monetary and human resources.

Every vendor is striving to identify products that will generate revenue — never an easy task. At least IBM now listens carefully to the people closest to the source of revenue: the users. This change amounts to a movement toward a matrix management structure, resulting in closer ties and better service for loyal users and less active support for those willing to buy from other vendors.

This change was required because IBM could ill afford replications of misdirected programs such as "Whitewater," a project for building a DB2-based accounting package. The joint effort with Arthur Andersen is estimated to have cost IBM $50 million before the plug was pulled in 1987, and an internal audit revealed that there was no reliable means to assess whether the program was still effectively aimed at user requirements.

After two years of metamorphosis, the IBM organizational entity is still not in a steady state. While the cultural changes on balance are for the better, the lack of an early warning mechanism for dealing with, for example, the depth of financial impact of the recent S-class chip problem indicates a need for more fine-tuning ahead. All the organizational restructuring in the world is misdirected if the result is delays in getting the product into the hands of users.

Tasker is vice-president of International Data Corp.'s Software Research Group and IBM Advisory Service, based in Framingham, Mass.

FACE
THE
FACTS

A Comparison Chart of the Major Cooperative Processing Software Products:

Functions:	SUPER-LINK® Family	Enter/3270®	IBM's HLLAPI™	IBM's APPC™ or CPI-C™	SQL*Star®	Arbiter®	Automator™
Cooperative Processing Topologies Supported							
Server/Requester	YES	NO	NO	NO	NO	NO	NO
PC-based Front-end To Existing Programs	YES	YES	YES	NO	NO	NO	YES
SAA/CUA Front-end Created Without Host Code Changes	YES	NO	YES	NO	NO	NO	NO
Peer-To-Peer Communications	YES	NO	NO	YES	NO	YES	NO
Distributed Database	NO	NO	NO	NO	YES	NO	NO
PC Developer's Toolkit							
4GL Language	YES	YES	NO	NO	YES	NO	NO
DBMS	YES	NO	NO	NO	YES	NO	NO
Screen Capture Facility	YES	YES	NO	NO	NO	NO	NO
Forms Generator / Screen Painter	YES	NO	NO	NO	YES	NO	NO
Can Call 3GL Subroutines	YES	YES	NO	NO	YES	NO	NO
Scripting Facility	YES	Partial	NO	NO	NO	NO	YES
Virtual Operator Mode	YES	YES	NO	NO	NO	NO	NO
Local Mainframe Communications Simulator	YES	NO	NO	NO	NO	NO	NO
Debugger	YES	NO	NO	NO	YES	NO	NO
Form Testing & Debugging System	YES	YES	NO	NO	YES	NO	NO
Host-based Transaction Simulator	YES	NO	NO	NO	NO	NO	NO
Automatic COPY LIB Generation	YES	NO	NO	NO	NO	NO	NO
Micro-based Table Generation Utility	YES	NO	NO	NO	YES	NO	NO
Automatic Generation of PC-level Documentation	YES	NO	NO	NO	NO	NO	NO
File Transfer Support							
ASCII/EBCDIC Conversion Of Data	YES	NO	NO	YES	NO	YES	NO
Transfer Of Binary Files & Text Files	YES	NO	NO	NO	NO	YES	NO
Transfer Under Host Or PC Program Control	YES	NO	NO	YES	NO	YES	NO
Full SDLC Error Detection/Correction For Asynch Links	YES	NO	NO	NO	NO	YES	NO
Front-End Processing Support							
SAA / CUA Fully Supported	YES	NO	NO	NO	NO	NO	NO
Optional Host Screen Pass Through	YES	YES	NO	NO	NO	NO	YES
Dynamic Control of Field Attributes	YES	YES	NO	NO	NO	NO	YES
PC FORMS of Up To Four Pages	YES	NO	NO	NO	NO	NO	NO
Field-level, Context-sensitive Help Facilities	YES	NO	NO	NO	NO	NO	NO
Automatically Non-Intrusive Help	YES	NO	NO	NO	NO	NO	NO
Optional Learning Mode Automatically Displays Help	YES	NO	NO	NO	NO	NO	NO
Icon-based Menus	YES	NO	NO	NO	NO	NO	NO
Light-bar Menu Selection	YES	YES	NO	NO	NO	NO	NO
Dynamic & Programmatic Cursor Control	YES	YES	NO	NO	NO	NO	NO
Softkey Labels	YES	NO	NO	NO	NO	NO	NO
Text Windows	YES	NO	NO	NO	NO	NO	NO
Peer-to-Peer Processing Support							
Data Compression	YES	NO	NO	NO	NO	YES	NO
Call-level interface between host and PC programs	YES	NO	NO	NO	NO	NO	NO
All Host Databases Supported	YES	NO	NO	YES	NO	YES	NO
All Host Applications Supported	YES	NO	NO	NO	NO	NO	NO
PC Developer's Toolkit Included	YES	NO	NO	NO	YES	NO	NO
Software Distribution Support							
Programmatic Interface	YES	NO	NO	NO	NO	NO	NO
Time/Date or Checksum Host Query	YES	NO	NO	NO	NO	NO	NO
Background Communications Support							
Simultaneous Background/Foreground Processing	YES	NO	NO	NO	NO	NO	NO
Control of Communications From Foreground Program	YES	NO	NO	NO	NO	NO	NO
Communications Protocols Supported							
LU2 Support	YES	YES	YES	NO	YES	YES	NO
LU6.2 Support	Planned	Planned	NO	YES	Planned	YES	NO
Application Portability							
Front-End Processing to Peer-To-Peer	YES	NO	NO	NO	NO	NO	NO
DOS To OS/2	Planned	Planned	Planned	NO	YES	Planned	Planned
LU2 To LU6.2	Planned	Planned	NO	NO	Planned	YES	NO
Host Environments Supported							
IBM TP Monitors Supported							
CICS	YES	NO	NO	YES	YES	YES	NO
IDMS/DC	YES	NO	NO	NO	NO	NO	NO
IBM Interactive Systems Supported							
VM/CMS	YES	NO	NO	NO	YES	NO	NO
MVS/TSO	YES	NO	NO	NO	YES	NO	NO
DEC VAX Supported	YES	NO	NO	NO	YES	NO	NO
Minimum PC Hardware Requirements							
IBM XT or Equivalent With 640k	YES	YES	YES	YES	NO	YES	YES

Every effort to present an accurate chart has been made, however no guarantee can be made. Enter/3270® is a registered trademark of Aspen Research. Automator ™ is a trademark of Direct Technology. Arbiter® is a registered trademark of Tangram Systems. SQL*Star® is a registered trademark of Oracle Corporation.

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EDITORIAL

Workstation shift

THE WORKSTATION WAR is no longer about leading-edge technology; it is solely a matter of market share. With one fell swoop, Hewlett-Packard's proposed acquisition of Apollo Computer has recast the image of the workstation market from that of a vibrant, upstart industry to one dominated by just a few vendors.

With the merger, HP controls roughly 30% of the market. Sun follows closely behind — at least for now — with about 28%. Add in DEC's 18% and you've got only 24% left to be divided up among a host of others, including IBM. How's that for consolidation?

Because this segment of the industry dates back only about nine years, and since it has only been approximately three years since vendors started to push into more general-purpose computing, this growth is phenomenal.

With workstations representing the fastest growing segment of the hardware business, it is highly unlikely that IBM will sit by while archrivals HP and DEC mop up the riches. Few think the next coming of the plodding IBM RT system is likely to rewrite the rules of this game, but then, until the AS/400 popped out the door, few thought IBM could battle back against DEC in the minicomputer struggle.

Making sense out of this situation is not easy, given the lack of precedent. There was a rapid consolidation in the personal computer industry, but the circumstances were far different: IBM essentially created the business PC industry with its off-the-shelf system, while dozens of clone vendors battled to establish themselves. Other than IBM, these vendors were essentially left out on the fringes and acquisitions have not played much of a role.

It is very likely that the pressure for the leading vendors to gain further market share and the reliance on standard components and operating systems evident in the workstation arena are going to provide customers with stunning price-/performance bargains.

Beyond that, the outlook is murky. Except for Sun, the market leaders are all well-established vendors. Because the market is already consolidated, there will be little room for the type of shakeout that accompanied the PC revolution.

Even with 75% of the most rapidly growing market segment in the hands of three players, workstation customers can continue to expect big, steady improvements in price/performance.

In the long run, such domination may inhibit the kind of innovation that drove the PC industry so quickly. Remember, low-margin upstarts such as Tandy and Leading Edge and performance leaders such as Compaq kept IBM from sitting on its laurels early in the PC game. Niche players continue to drive the PC market to new frontiers. Let's hope the lure of opportunity in the workstation arena isn't too quickly squashed by the complacency of domination.

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PRIME
ASK HIM IF HE HAS A YOUNGER BROTHER!!
APOLLO
SIR HEWLETT-PACKARD

LETTERS TO THE EDITOR

Feds defended

Regarding your article "FBI called lax in wake of hacker nab" [CW, March 13], I do not agree with remarks in the article, attributed to Jim Christy of my Computer Crime Division, which referred to the Federal Bureau of Investigation's "embarrassment" and our "frustration" with the Bureau and Department of Justice.

Christy's comments appear to be taken out of context of the interview and do not reflect our organization's view of FBI and Justice Department efforts to combat computer crime. The Office of Special Investigations has an excellent working relationship with the FBI, and Christy was in no way singling out the FBI or any other agency as being either "embarrassed" or "lax."

To the contrary, the purpose of granting the interview was to impress upon the reporter that computer crime is an emerging speciality in most agencies, and the past two years of dealing with hackers have been an educational, eye-opening experience for all federal law enforcement agencies. Christy offered that, in this computer hacker world, all investigative agencies, including the FBI, can be embarrassed and that we all have taken too long to recognize and counter this threat to national security resources.

I am further concerned that your article implied the existence of an antagonistic relationship between the agencies working to counter computer crime. We all share a great concern for the threat, and we understand that countering the threat depends on increased cooperation and exchange of information among the agencies concerned.

I hope this sets the record straight on behalf of the many agencies that are working very hard on this problem.

Francis R. Dillon
Brigadier General, USAF
Commander
Bolling Air Force Base
Washington, D.C.

Not-too fairs

After reading "Are job fairs worthwhile?" [CW, April 3], I thought that I would point out one factor the author missed when talking about the disadvantages of attending.

What she failed to mention is that many firms have a policy that if they have received a person's resume at a job fair, they will not accept a referral from a recruiter at a later date.

What has happened is that the information has gone unused until it has been "tickled" by a recruiter, whom you have contacted as much as several years later.

What we have found after researching this phenomena is that most firms then take no action to invite this known person for an interview. Frequently, you do not interview for a position you are well-qualified to perform — not because the recruiter failed you but because of attending a job fair.

If you have immediate need for a job, perhaps there is some value in attending a job fair. However, if you are looking for an opportunity to leverage your experience or are looking for a better opportunity, then develop a relationship with a trusted advisor in the recruiting industry.

Jeff Altman
President
Jeff Altman & Company, Inc.
New York

Internal auditors

Les Gilliam describes "The new EDP auditors" [CW, March 13] as those external auditors who know enough about systems to make valuable suggestions for improving the IS function. While it is true that many external auditors are working hard to gain computer audit expertise, you might be interested to know that the *real* new EDP auditor can be found in today's internal audit departments.

The new EDP auditor is really an operational auditor with specific technical systems expertise. Leaving the review of standards and procedures to general operational auditors, the technical operational auditor is working with systems management to challenge today's problems such as systems software weakness and operational effectiveness.

Whether old or new audit approaches are used is based on the audit mission as defined by top management — and old audit approaches don't lead to a "well-prepared auditor's report" that you value so highly.

After all, most auditor's reports on IS topics usually fall in the SSDD category — Same Stuff, Different Day — and "well-prepared" doesn't always lead to "well-read and well-done."

John D. Tongren
President
Tongren & Associates
Muskegon, Mich.

Computerworld *welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laberis, Editor,* Computerworld, *P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701.*

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Training session from hell

MICHAEL B. COHN

I took an extra 10 minutes getting dressed that morning: polyester-free suit, power tie, even matching socks. I had spent seven months developing this system, and I wasn't going to blow it by giving a bad demo. I had all the right equipment. I'd rehearsed all my lines. But just in case, on the way in, I picked up an insurance policy: creme-filled donuts.

I arrived early to ensure that the room was ready. All four terminals were up and running, each equipped with two chairs, two workbooks and two dangerously sharp pencils.

I had covered all the bases. The supervisors had approved the specs. My manager knew how hard I had worked. But what if something went wrong? What if the system went down right in the middle of the first exercise? I placed the donut box where people would immediately see it as they walked in the door.

I was a little leery about starting at 8:30 a.m., especially when no one had shown up by 8:45. Around 9:00, two people stopped in. They looked around the room. They each took a donut. Then they left.

But several minutes later, all eight people arrived. I had gotten a pretty good mix of attendees: a supervisor, a few clerks, even some finance people. I was ready to begin.

"Now, as you all know, we've always filled out these hard-copy time cards every Friday," I began, holding up not a 3¼- by 7½-in. time card but a laminated 13- by 30-in. glossy replica. I was leaving no stone unturned.

"Today I'm going to introduce you to our new on-line time-card system. From now on, since all of you have terminals, you'll be able to enter your time cards on-line and automatically send them to your supervisor. This will result in a significant savings of time, effort and money."

I paused for a moment, interrupted by the sound of a rapidly clicking keyboard. Two finance folks at the first terminal were already logged on and looked like they were on page four of the workbook.

I was polite. "Look, let's all try to stay together on this, and we'll be through this in no time. Let's all turn to the first page of your workbooks, and log on to the new time-card system."

I got everyone to the time-card panel with relative ease and started my sales pitch. I figured the system would sell itself.

I was wrong. The supervisor shot up her hand. "Is this a project-tracking tool?" she asked. "Can I get a Gantt chart of my project schedule for the next several months? With resource allocations? Milestones? Critical path?"

The clerks were not interested in her buzzwords and started looking at the empty donut box. I tried to respond courteously, speaking just loud enough to be heard over the keying of the finance team, who were already entering their data.

JOHN DYKES

"Well, this tool was just intended to replace the manual time-card system; we really didn't plan to make it a comprehensive forecasting tool. But I'll jot that down for the next release."

From the left flank came another inquiry. "Does this system report history?"

"Sure does," I responded, fielding this one like an all-star shortstop. "You'll be able to retrieve every time card you've ever entered all the way back to the first day we go live."

The fellow who had asked this question seemed impressed, but the elderly woman sitting next to him looked very unhappy. She looked down at the floor as she spoke. "I've got every time card I've ever had since I joined the company in 1947," she said. "Now what am I supposed to do with them?" There was heavy emphasis on the "Now."

"Hold onto them, if you like," I offered. "But we had to have a clean start-up date for the new system. Now, why don't we just try to jump into the workbook exercises here, and maybe all of this will make sense?"

Suprisingly enough, the crowd was relatively cooperative. Within a half hour, we had completed all the exercises. I braced myself and got ready for the final barrage. "Any last questions?" I asked.

Everyone started to look at their watches, and for a moment, I thought I was safe. But the elderly woman spoke up again. "So now how do we get our supervisors to sign the back of our time cards?" She loved that word "now."

Read my lips

I smiled and was extraordinarily polite. "Uh, let me try to explain this once again. We'll be keying our hours into the terminals from now on, see? Your supervisor will be able to pull up anybody's time-card panel at any time, see? Then he or she will use a function key to approve the data before it goes to Personnel. It's all automatic. OK?"

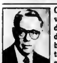
The fellow next to her seemed to understand. The supervisor seemed to understand. I knew the folks from finance understood; in fact, they were still keying away, probably modifying the source code. But the elderly woman shook her head. "I still don't see who you're going to get to key in the time cards after we fill them in."

I reached behind me for the laminated glossy time card. I'm not sure whether I was going to use it to firmly make a point or politely wrap it around her forehead. But by the time I turned back around, everyone had gone. All that was left was the hum of four terminals, half of a flattened creme-filled donut and the workbooks they had left behind.

Cohn is a quality assurance representative based in Atlanta.

When will software development bloom?

FRANCIS K. WALNUT



Once, I had a vegetable garden. In that garden, I planted beans. I attempted to ensure that my beans would flourish by erecting a sophisticated system of bean poles. With all due modesty, I must report that my bean-pole system was an engineering masterpiece, combining strength with symmetry and elegance.

As spring moved into summer, however, a problem developed. I had planted the wrong kind of beans — bush beans instead of climbers. Rather than climbing my bean-pole system, the bean plants just laid there and produced beans.

I made every effort to force the implementation of my system. I even attached individual bean sprouts to the poles in the hope that the plants would revolt against their nature and climb. But, in spite of all my efforts, it readily became apparent that my beans would not climb, and I had to accept my bean-pole system as a monument to my unwillingness to read documentation.

Cultivating concern

Today, I reflect on my gardening experience as I become aware of our software development dilemma. We are creating a comprehensive software curriculum supported by sophisticated tools, systems and utilities — all based on what we have defined as the software development process. Although impressed with our achievements, I question, as I did many springs ago, that perhaps we are building systems for the wrong beans.

Over 20 years ago, we decided that program development is an engineering activity. Characteristic of that activity is a design phase that relegates the remainder of the development process to a pedestrian implementation of that design.

Once we accepted that approach to software development, we first gave it a new name — software engineering — and then developed a complex technology that would simplify the design process and automate the implementation process.

We developed intricate structured design concepts based on the hypothesis that there is a universal programming-system design correct for all systems.

We convinced ourselves that top-down, structured coding will so standardize the coding process that system implementation will become a clerical activity.

We believed that if we found the correct scheduling procedure, motivational technique or monitoring system, we will be assured of complete, trouble-free control of every software development project.

Through these technologies, we now have a functional software development bean-pole system. But the beans aren't climbing.

After clearing away all the hype and glitter, it is apparent that software development is, essentially, no more efficient than it was 20 years ago.

The software community admits to losing control of over a third of its software development projects. Vaporware has become a serious industrywide problem. A major concern of MIS professionals is the proliferation of unreliable, inefficient and untimely software.

Arts and crafts

As we face these problems, we should remember that, at the time we decided on an engineering approach, programming was well on its way to maturing into a different type of activity — one that has been derisively referred to as "arts and crafts" by some of the more sophisticated of us, but which I prefer to call a craft activity.

A craft activity is characterized by a development process in which controlled innovation, creativity and individualism permeate all parts of the process. It differs from an engineering activity in that the design phase consists of a flexible framework within which subsequent areas of development must work rather than a complete detailed design that must be implemented as-is.

Within the limitations of this framework, craftsmen make full use of their particular expertise and are permitted to exercise their own innovation and creativity.

If we had allowed programming to continue its maturation process and provided technologies to support it, we might now have an efficient program development process. Instead, we are substituting artificial, all-encompassing designs for individual, flexible ones that meet the needs of specific applications.

Our software-development bean-pole system has evolved through the efforts of many brilliant, dedicated, highly motivated people who are justifiably proud of their achievement. It is understandable that the prevailing attitude in the software community is that it is only a matter of time before software engineering awakens, takes advantage of our new technologies and climbs majestically through our bean-pole system.

Perhaps so, but I can attest to the fact that it is easy to lose sight of the beans while creating a bean-pole system. It may be we are developing systems for the wrong kind of beans.

Walnut is president of Documentation Research in Drexel Hill, Pa., a company that prepares programs and consults on automated documentation.

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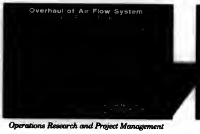

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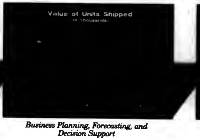

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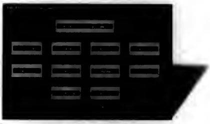

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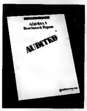

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SOFT TALK

Richard Raysman

Whom do you slug for the bugs?

A hobbyist has just purchased a set of high-technology power tools in which speed and calibration are controlled by a computer program. But the computer program contains a bug, and one day, the hobbyist injures himself.

Rather than sue the distributor, which has limited financial resources, he would prefer to press his claim against the manufacturer of the product, particularly with regard to the computer program, which he views as the direct cause of his harm. He would like to ground his claim on strict product liability but is unsure whether such a claim applies to software. Does it?

The question of strict product liability arises when there is no direct contractual relationship between the software seller and the end user who suffers personal physical injury or property damage. Legally, the manufacturer is claimed to have as-

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Inside

Tossing the legal pads for legal ease

ON SITE

BY J. A. SAVAGE
CW STAFF

SAN FRANCISCO — In a law firm, you would expect to see attorneys practicing law. Walk into this city's largest law firm, Pillsbury, Madison & Sutro, and you are likely to see lawyers practicing their software commands.

Nearly 500 lawyers and their support staff are learning to use a $10 million office automation system powered by three Digital Equipment Corp. VAXs — one 6210 and two 6230s — that will replace an IBM host, although the firm counts IBM among its clients.

"We had to automate to stay competitive," said Russ Johnson, a partner in the firm and chairman of the firm's information systems committee. Johnson said that while automation may not give him an edge in court, it keeps his opponents from gaining an edge on him.

The system, which is slated to run word processing and calendaring and keep track of the firm's massive file room and library, was not an easy sell to the partners.

"The more senior people didn't want lawyers learning word processing," Johnson said, "and they didn't think the clients would pay for it."

"A lot of people grew up suspecting that anything having to do with a keyboard was clerical work," said William Thompson, Pillsbury's director of MIS.

"Although a yellow tablet was OK," Johnson added.

For a firm that has tens of thousands of cases at any one time requiring expediency, automation won out.

Although Johnson was one of the lawyers defending IBM in its 13-year antitrust case and IBM remains a client of the firm, DEC was chosen for the project. This is also despite the presence of an IBM 4381 that is running customized batch-based billing and accounting software. The IBM mainframe will be phased out by the end of year.

"The fact that IBM was a client would have been a tie-breaker," Thompson said. But there was no tie. "The cost of maintaining the IBM system was greater," Johnson added.

ROBERT HOLMGREN

Pillsbury Madison's Thompson *mixes law and technology*

The ability to run Wordperfect Corp.'s Wordperfect Office was a major consideration, Thompson said. "Wordperfect is the most widely accepted [software package] in the legal industry," Thompson said. He added that "paper, and lots of it, is our most important product."

Pillsbury, which claims to be

Continued on page 30

Concurrent to move to RISC platform

BY ROSEMARY HAMILTON
CW STAFF

BOSTON — Concurrent Computer Corp. last week expanded its line of proprietary real-time systems, but it will likely be the last big proprietary offering for the Tinton Falls, N.J., organization.

The company, which was acquired by Massachusetts Computer Corp. (Masscomp) last year, also announced plans to move to a reduced instruction set computing (RISC) platform. With the acquisition, Concurrent became the provider of two distinct product lines: its proprietary real-time systems and Masscomp's Unix-based systems.

Concurrent would not say which RISC chip it will use. But James Sims, Concurrent's chief executive officer, said the migration for both product lines will begin next year.

The Micro 3200 series, which consists of six models that start at $55,000, is targeted at high-performance real-time applications that require subsecond response time. The company said the systems are suited for such applications as process control and flight simulation.

Object-code-compatible

The new models are object-code-compatible with the 3200 series systems, the company said. Both run the Concurrent OS/32 proprietary real-time operating system.

Last week's announcement was the company's first addition to its proprietary line since the Masscomp deal last year. Sims said the company has been working to unite the two product lines. The first phase, which involved a communications link to bridge the Unix and proprietary systems, was recently completed. The communications tool, called Pennet, was first made available for the proprietary systems and just became available for the Unix boxes, the company said.

The second phase of the integration involves establishing common programming languages for both environments. The third and final phase is the move to a RISC platform.

Tektronix noses into RISC workstation race

BY JAMES DALY
CW STAFF

WILSONVILLE, Ore. — The horse race in the high-powered workstation field got a little tighter recently when Tektronix, Inc. unveiled a family of reduced intruction set computing (RISC)-based graphics workstations that can process 17 million instructions per second.

Tektronix's XD88 family includes two- and three-dimensional workstations that are based on Motorola, Inc.'s 88000 RISC chip, as well as an applications processor that can host both Tektronix terminals and a file server, the firm said.

The firm's announcement adds yet another spark to the competition in a niche that has begun to ignite. Since the beginning of the year, several major vendors — including Digital Equipment Corp., Data General Corp. and Apollo Computer, Inc. — have hurdled each other's price/performance claims as they jockey for market position.

The standard workstation system configurations on the new models include 8M bytes of random-access memory and a 156M-byte hard disk.

Base prices for the machines range from $29,950 for the 2-D XD88/20 workstation to $34,950 for the 3-D XD88/30. The XD88/01 applications processor starts at $24,950, while the XD88/05 file server begins at $75,000. The XD88 machines can be ordered now and are slated to ship in June. The XD88/05 file server is scheduled to ship in September.

A programming catch-22

ANALYSIS

BY STANLEY GIBSON
CW STAFF

While object-oriented programming is attracting attention as the programming method of tomorrow, progress on it today hinges on object-oriented languages, such as AT&T's C++, that are still in a state of flux.

In a chicken-and-egg dilemma, object-oriented languages are too immature to be standardized, but many believe that widespread object-oriented progress cannot be made unless a standard is created.

"That's the reason we won't have a revolution in object-oriented programming," said Tony Percy, vice-president of software management strategies at the Gartner Group, Inc. in Stamford, Conn. Nonetheless, the gradual use of object-oriented methods continues apace while building a reservoir of user experience that will someday go into a standard.

"Standardization should come as soon as possible but no sooner. It's not if, but when. We're talking timing here," said Bjarne Stroustrup, the AT&T Bell Laboratories researcher who created C++. "It would be a mistake to standardize before the event, as they did with Ada. You have to build the language then allow time for a base of experience to develop." Serious standards work on C++ should not begin for one or two more years, be added.

Next step

Stroustrup wrote the C++ language in the early 1980s. AT&T first licensed it to other vendors in 1986. C++ gets its name from the C language, on which it is based, and "++," which in C means "next" or "one more."

Stroustrup, a 38-year-old native of Denmark, has been serving as caretaker of the language up to this point. The 10-year Bell Laboratories veteran is working with other Bell Laboratories software engineers on the next version of C++, which AT&T said will be released by June 30.

Stroustrup said a key benefit of the new version will be its reference manual, which is being completely rewritten. He is spending a good deal of time working on the manual, which be promises will be much clearer than the current one and will gain from several years of user experience.

The new version will also include multiple inheritance, an improvement that is supposed to make the language more suited to the development of windowing applications. Some compet-

Continued on page 31

IBM image plan not a clear picture

BY AMY CORTESE
CW STAFF

The imaging system plans that IBM outlined last June are coming together, albeit slowly.

In that statement of direction, IBM said it would add early support users of its Imageplus systems by early 1989. The company said it would detail general shipment dates and pricing for those Imageplus products during the same time frame. More recently, IBM used a low-key announcement to fill in some details, with availability dates listed as the fall of 1989 and later.

While the first pieces of IBM's Imageplus systems — the Personal System/2-based image workstation — will be available this fall, other products essential for processing images on the IBM System/36, Application System/400 and MVS/ESA systems will arrive later.

IBM has worked closely on its image products with two beta users — Citibank NA and the United Services Automobile Association (USAA) in San Antonio. An IBM spokesman said that two additional Imageplus systems have been installed at unspecified sites.

However, firms such as Wang Laboratories, Inc. and Filenet Corp. offer imaging systems today that do not run on IBM mainframes but can access them through terminal emulation.

"IBM is trying to establish a beachhead in an attempt to hold customers who might take their image business elsewhere," said Steve Wenler, a program director at the Gartner Group, Inc.

Indeed, IBM's premature image announcements have already caused some customers to stall image plans, noted Paul Thomas, an analyst at Framingham, Mass.-based International Data Corp. But it is still unclear what applications software and development tools IBM will provide for imaging.

The elements of Imageplus Systems for MVS/ESA, the AS/400 and the System/36 include PS/2s with special adapters, monitors and software; optical storage subsystems; and application software that uses electronic folders to manage and distribute image documents. The systems — which range in price from $200,000 to $15 million — use IBM Systems Application Architecture communications support facilities such as LU6.2 services and IBM's Token-Ring network to move documents between the host and the image workstation. IBM does not plan to offer a stand-alone PS/2 Imageplus system as yet.

Imageplus products roll in the fall

• PS/2 monochrome display, image adapter	9/89
• PS/2 Imageplus workstation program	9/89
• Optical library unit	9/89
• Optical disk drive	9/89
• MVS/ESA direct attachment	12/89
• MVS/ESA image software	12/89
• System/36 image software	9/89
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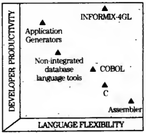

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*Obviously, mixed 4GL/C programs or code written to take advantage of specific operating system features may need to be rewritten or recompiled.

Motorola latches onto CIM market

BY ELLIS BOOKER
CW STAFF

SCHAUMBURG, Ill. — Motorola Computer X, Inc. became the latest contender in the factory automation arena earlier this month, introducing a computer series designed specifically for computer-integrated manufacturing (CIM).

Based on 68030 microprocessors from its parent company, Motorola, Inc., the systems will confront products from Digital Equipment Corp., Hewlett-Packard Co. and IBM, which now dominate what Motorola calls a $11.5 billion CIM market.

Computer X President John E. Jones said the CIM systems were the culmination of a five-year development process and some 200 customer installations. He said the series can bridge manufacturing and office environments because they feature a distributed, modularly scalable architecture — what Motorola calls its Single Virtual Machine architecture — that allows a single computer to access resources without having to know where they reside on a distributed network.

This feature is significant, Jones said, "because more than 50% of the cost of CIM systems is represented by system integration and application software development."

Based on the 68030 processor and Motorola VMEbus hardware, the industrial computers include 16 standard models with real-time CXOS operating systems and four development systems using the 68020 running the Cores operating system. Cores combines CXOS and an implementation of AT&T'a Unix System V with the proposed Posix real-time extensions.

The Unix option could be an important plus in what is now the proprietary world of factory automation, said Martin Piszczalski, a senior industry analyst in the manufacturing automation planning service at The Yankee Group.

"The beauty of Unix is it has tons of applications development tools," Piszczalski said. He noted, however, that Unix on the factory floor is a rarity today, "on the order of a few percent. Right now, only the pioneers are using it."

"They're entering the demilitarized zone between the real-time devices and plant-floor computers. They're on the right track," said Bruce Richardson, vice-president at Advanced Manufacturing Research, Inc. in Cambridge, Mass. AMR's recent survey of 150 manufacturing firms found DEC with a 43% share, followed by 24% and 10% for HP and IBM, respectively.

Like IBM and DEC, Motorola will leave the job of creating factory floor applications mainly to OEMs, systems integrators and end-user developers. Available immediately, the Computer X systems will be priced from $15,000 to $45,000 per machine, according to Motorola.

Suppliers hop to IBM's beat

Forget sleeping. Third-party mainframe memory suppliers do not even have time for a nap, thanks to IBM.

Cambex Corp. joined EMC Corp. recently in adjusting prices as a response to an IBM special deal that will give customers an average discount of 20% off central and expanded storage purchases through September. This is the third IBM price cut or promotional offer the third parties have had to respond to since February.

Cambex, which has been offering 3090 memory products since late last year, tried to outdo IBM by offering a 26% to 28% price break for purchases made from now until September.

With that reduction, a 64M- to 128M-byte increment of central storage will reportedly cost $290,000. An 64M-byte expanded storage module will cost $105,000.

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HP opens worldwide support channels

BY JEAN S. BOZMAN
CW STAFF

MOUNTAIN VIEW, Calif. — In what observers said was a bid to become an enterprisewide supplier, Hewlett-Packard Co. recently expanded to worldwide its round-the-clock remote diagnostic support, opened a new customer support operations building and streamlined its software maintenance contract structure.

The 24-hour, seven-day-a-week call-in service had been put into place in recent months at 32 HP response centers. That service will now be coordinated from a new building here housing 1,100 personnel in conjunction with other maintenance hubs in Atlanta; Bristol, England; and Melbourne, Australia.

"Our goal is to give customers the same level of support in Singapore, Japan and Paris that they would get in downtown San Francisco or Los Angeles," said Mike Leavell, vice-president and general manager of worldwide customer support operations. Also, the firm now offers service support for multivendor operations.

HP had provided five-day-a-week call-in service for 12 hours a day until 1987 and has been increasing its hours since then, said Marc Hoff, general manager of HP's Application Support Division.

"They're trying to provide enterprise-level support — the same kind of support provided by DEC and IBM and Unisys," said Nancy Kirk, director of industry research at The Sierra Group, Inc. in Tempe, Ariz.

At the same time, HP announced a streamlined software maintenance-contract structure, replacing one that had been more complex. The simplified plan has three levels of support: Basicline, an electronic bulletin board of service information for owners of HP workstations and personal computers; Responseline, for remote diagnostic support and on-site support; and Teamline, a combination of remote diagnostics, on-site service and on-site consulting for large sites.

HP's global service will be important for multinational companies such as Levi Strauss & Co. The Levi Strauss international division uses 19 HP machines, including HP 3000s and the newer HP Spectrum 950s, to handle global distribution and warehousing of clothing products. "We're going all the way with the 950s," said Al Duval, supervisor of system software at the international division. "We chose HP worldwide because HP machines are smaller and easier to maintain in foreign countries than larger mainframes."

Legal ease

CONTINUED FROM PAGE 21

the nation's eighth largest law firm, operates out of three buildings in downtown San Francisco, with branch offices in Los Angeles, San Diego, San Jose and Walnut Creek, Calif., and Washington, D.C. Currently, only San Francisco and San Jose are automated. The other offices will be brought into the same environment before the automation project is completed in 1991. Those offices, as the main offices did before, primarily use IBM's Displaywrite system, with a smattering of Personal Computers and Selectric typewriters. Remote offices will be connected through DEC's Trans LAN Bridges wide-area network, while local offices use Ethernet.

To keep up with special projects, such as a big trial in a remote area, Pillsbury has implemented what it calls a mobile office. While the name "mobile office" conjures up the idea of a recreational vehicle filled with computers and peripherals with a satellite dish on top, this mobile office is simply a cluster of equipment, personal computers and typewriters that can be installed in short-term rental office space for litigation support for "the cases we have pending all over the country," Johnson said.

The three vintage downtown buildings posed serious problems for the new system. The major obstacle was "the A word" — asbestos, according to Thompson. The buildings had to be rewired, and "either asbestos itself or the politics of asbestos" stalled work, Johnson said.

The three buildings, within a half-mile radius, are linked by redundant fiber-optic lines. Each building has two fiber-optic lines in different areas, so each has a backup in case a disaster or other interruption strikes.

When complete, the systems will support 1,500 users, including all the attorneys. Concurrently, the MIS staff is growing from 14 to 43, with in-house trainers.

The cost of the new system has not been easily absorbed by the firm. In March, the partners did not receive any revenue-sharing payments, leading analysts to scrutinize the firm's profitability. Johnson said that while this was unusual, it has happened before. The cash flow problem was blamed in part on automation and the capital improvements surrounding the project, although Thompson maintained the system is not over budget. "In fact, it will come in significantly under budget," he predicted.

Raysman

CONTINUED FROM PAGE 21

sumed a special responsibility toward the consumer for accidental injuries caused by the product. The user might argue that the manufacturer should bear the burden for any injury resulting from a defect in software from the time it leaves the factory.

The following elements must be demonstrated for a strict product liability claim to succeed: an unreasonably dangerous defect that existed when the user received the product; the product was used in a reasonable fashion; an injury was incurred by the user; and the existence of proximate cause between the defect and the injury.

As a user, the first hurdle to overcome in pursuing a strict product liability claim is to establish that the computer program causing the injury is a good rather than a provision of services. A strict liability claim does not encompass services. Further, by proving the program is a good, the user can take advantage of the warranty obligations imposed by the Uniform Commercial Code.

The courts are currently split on whether computer programs are a good or a service, but it is a pretty sure bet that the vendor will argue that the computer program sold was the provision of services, particularly if it contained any customizations.

For the user, one argument to which the courts have been receptive is that the information contained in the program itself is a product. Information has been found by the courts to be a product to which strict liability could apply. One interesting case serving as a precedent involved a fatal plane crash, which allegedly resulted from faulty maps supplied by the manufacturer. The court found that the navigational charts mass-produced by the defendant constituted products under the products liability law.

The vendor is likely to respond to this information-as-product argument by contending that the content of the information-containing medium is not the product sold. There is precedent to support this view as well.

To successfully pursue its strict product liability claim, the user will have to prove foreseeability — that is, it will have to be proved that the injured party used the product in a foreseeable manner. In the example of the user of the high-technology power tools, it was clearly foreseeable that if the controlling computer software malfunctioned, then physical harm would likely result to the user. The user could bolster his claim by pointing out that the product also contained inadequate warnings to users.

See worthy

In addition to arguing lack of foreseeability, the vendor may assert the lack of privity, or direct contractual relationship, between itself and the end user. It may claim that it should not be made to assume liability to an unlimited public for a potentially unlimited period. The privity argument by the vendor, however, runs counter to the spirit of a strict product liability claim that does not require such a direct contractual relationship.

While the impaired user of a computer program may not first consider the strict product liability claim as a possible cause of action, precedent has been established in the courts that lends support to such a complaint. Conversely, the prudent vendor can seek to avoid such claims by providing adequate warnings when selling a program and attempting through contract to limit the class of persons to whom it can be held liable.

Raysman, an attorney at New York firm Brown, Raysman & Millstein, specializes in computer law.

Catch-22

CONTINUED FROM PAGE 23

ing object-oriented languages offer multiple inheritance, but currently, C++ offers only single inheritance.

Inherent inheritance

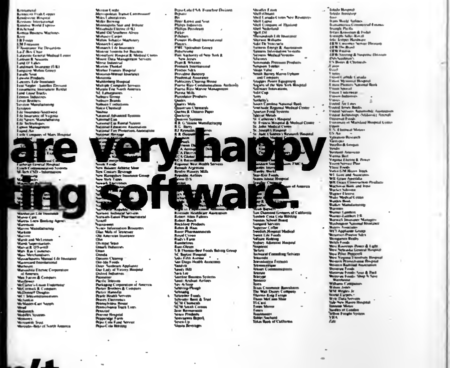
Inheritance is the ability of an object to carry attributes of a larger class, said Paul Fillinich, product manager of C++ at AT&T. Under single inheritance, an object can inherit traits from only one class. Multiple inheritance allows the object to possess traits from more than one class. In windowing, Fillinich said, a window needs to inherit three traits: scrolling, sizing and movement.

The new release may also bring added support from the company, according to Fillinich. Currently, AT&T sells C++ on an unsupported basis. AT&T relies on resellers to support the language with whatever tools they add.

Oasys, Inc., a Waltham, Mass.-based vendor of software development tools, has been reselling C++ since AT&T first commercialised it, according to spokeswoman Ann Bischoff. "It adds productivity to people doing C programming, and it allows people to write less code at a higher level," Bischoff said. "That means less code that has to be debugged."

A key selling point of C++ is its relationship with the established C language. It includes ANSI-standard C as a subset, as does Objective C, another C-based object-oriented language, sold by The Stepstone Corp. in Sandy Hook, Conn.

Because the language contains C as a subset, a programmer may switch from object-oriented programming to C programming and back. Within the program, objects coexist with nonobjects.



NEW PRODUCTS — SOFTWARE

Utilities

Digital Equipment Corp. has announced a performance management and capacity planning software tool for its VAX/VMS systems, the company said.

Designed for systems managers, The VAX Performance Advisor reportedly gathers system data, analyzes it, identifies performance problems and makes suggestions for solving those problems and improving performance.

The product relies on artificial intelligence techniques, the vendor said, and is priced from $750 to $23,750, depending on the processor.

DEC
146 Main St.
Maynard, Mass. 01754
508-493-5111

Compuserve Data Technologies has released Version 1.5 of its System 1032 Application Facility (System 1032/AF) for Digital Equipment Corp. VAX/VMS users.

The product is a menu-driven, screen-based facility that was designed to automate application programming and maintenance, according to the vendor. The upgrade reportedly provides field validation, variable-length text and screen painter facilities. It is priced from $600 to $36,000.

Compuserve
1000 Massachusetts Ave.
Cambridge, Mass. 02138
617-661-9440

Training

An interactive videodisk training series has been introduced by Emtech Education Corp.

The Emtech Library product provides computer-aided software engineering training and is sold on a subscription basis. It reportedly includes a vendor-supplied Learning Station hardware platform and eight videodisk programs. Each Learning Station is provided on loan for one year and can support as many as 50 users, the company said. Topics include information modeling, structured analysis, structured design and essential systems analysis, and each program includes a glossary of terms.

The Emtech Library has a price tag of $20,000 plus $350 for shipping and preparation charges, according to the company.

Emtech Education
2401 Colorado Ave.
Santa Monica, Calif. 90404
213-829-7141

NEW PRODUCTS — HARDWARE

Processors

Applied Digital Data Systems, Inc. has announced a multiuser computer system that features an Intel Corp. 80386 processor running at 16 MHz, the company said.

The Mentor 1800 incorporates Pick Systems' Pick operating system and can be configured with an 85M- or 140M-byte drive. The system can accommodate from three to 17 users and comes standard with a 60M-byte, ¼-in. cartridge tape, according to the vendor. Pricing starts at $11,100.

ADDS
100 Marcus Blvd.
Hauppauge, N.Y. 11788
516-231-5400

A system designed to address information management requirements of engineering and technical functions within electric utility companies has been announced by Digital Equipment Corp.

According to the vendor, The Integrated Engineering System for Utilities integrates computer hardware, applications and networks to simplify application integration, data access and system management functions. The product reportedly combines DEC's VAX computers, workstations, local-area Vaxcluster software, networking software and hardware with a variety of popular software applications.

Pricing is determined by system size, applications and services selected, the company said.

DEC
ESG Marketing Communications Group
4 Results Way, MRO4-2/C7
Marlboro, Mass. 01752
508-467-6804

Power supplies

Data General Corp. has announced a line of high-availability uninterruptible power supplies (UPS).

The UPS systems are field-upgradable, on-line peripherals designed to clean the power to the system and to provide power during a brownout or blackout, according to the vendor. The products are for use with the company's Eclipse MV/40000 and MV/40000HA computers. They are available in power ratings from 50 kVA to 125 kVA and are priced at $55,000 and $74,000, respectively.

Data General
4400 Computer Drive
Westboro, Mass. 01580
617-366-8911

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Two Allegheny Center
Pittsburgh, PA 15212

Which com

- Binary-compatible UNIX systems with th
- Delivered the most RISC processo

The Terminal Of The '90s Has Arrived A Bit Early.

Wyse introduces the WY-150.

They always said there would be such a terminal "someday". It would have the flexibility and connectivity to operate in virtually any computing environment, while meeting the most exacting ergonomic requirements. And, it would deliver those advantages at an affordable price.

"Someday" is here much sooner than expected.

Choose your favorite keyboard from three WY150 options.

It's called the Wyse WY-150, a breakthrough in terminal technology that will set price/performance standards for years to come.

Bridging the worlds of ASCII, ANSI and PCs, the WY-150 offers compatibility with a wide range of operating systems. Including UNIX/XENIX, MS-DOS, Concurrent DOS, PC-MOS, and PICK. With a choice of three keyboards. And typical of Wyse, the WY-150 does it all with stylish design at a price that's also attractive.

The WY-150 also sets new ergonomic standards. Its 78 Hz refresh rate eliminates any hint of flicker. Just as overscanning and a bezel that matches the soft, paper white phosphor erase distracting borders. (Amber and green phosphors are also available.) The oversize 10x16 cell makes each crisp character stand out vividly.

The WY-150 is also part of *SystemWyse.* It links effortlessly with Wyse PCs and multi-user platforms to create uniquely integrated and cost-effective solutions. Everything is designed, manufactured, and tested by Wyse to work together. And it's all backed by the service and support of the world's leading independent terminal maker.*

Only one question remains. Now that the terminal of the '90s is here, what are you waiting for? Call today for more information on the WY-150.

1-800-GET-WYSE

Wyse® is a registered trademark of Wyse Technology. SystemWyse and WY150 are trademarks of Wyse Technology. Other trademarks/owners: UNIX/American Telephone & Telegraph, Concurrent DOS/Digital Research Inc., PC-MOS/The Software Link, Inc., PICK/Pick Systems, MS-DOS, XENIX/Microsoft. *IDC 1988 U.S. Terminal Census.

WYSE

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PCs & WORKSTATIONS

MICRO BITS

Douglas Barney

Suits require alterations

A futile plea? It took a while, but those who sell minicomputers and mainframes learned their lesson. Customers will no longer put up with purely proprietary architectures. It's either open up or get me another vendor.

Meanwhile, much younger personal computer firms are reinventing these same hosts and host-style applications. Unfortunately, these companies are duplicating the old proprietary way of large systems instead of the new open style. This is a bad, bad mistake, mostly being made by software houses.

How long will it take them to realize that closing software architectures through patents, copyrights, unwillingness to publish file format specifications and god-awful lawsuits is just bad business?

These lawsuits are clearly the most insidious and visible manifestation of software evil. Now Quarterdeck even has a patent on windowing and multitasking. What's next? A patent on VDT-induced eyestrain?

Like all conflicts, there are two sides to the lawsuit story. Here, there is the bad side and

Continued on page 42

Color LCDs light up Comdex

Vendors scramble to be first to market with chromatic laptop displays

BY ELLIS BOOKER
CW STAFF

CHICAGO — Manufacturers of laptop computers are finally dreaming in color.

At Comdex/Spring '89 earlier this month, Toshiba America Information Systems, Sharp Electronics Corp. and Zenith Data Systems all had prototype color displays on view — much to the delight of attendees, judging by the stream of interested spectators at those vendors' booths. The question is, who can bring an affordable flat-panel color screen to market first?

While none of the Comdex vendors are saying when they will start offering color displays in commercial products, the least coy of the three is Sharp, hinting that its PC-8000 will be on the market within the year.

"In less than a year, someone will get in," said Sharp marketing manager Tom Bongiorno.

Sharp's PC-8000, shown at Comdex, uses an Intel Corp. 80386 processor, sports a 640- by 480-pixel IBM Video Graphics Array (VGA) solution on its backlit, supertwist LCD screen and runs on AC power. The portable, which will only be offered with a color display, will come with a 40M-byte hard disk, 2M bytes of random-access memory, a 3½-in. high-capacity floppy and room for one full- and one half-height expansion board, Bongiorno said.

Meanwhile, both Toshiba and Zenith demonstrated a competing LCD technology, called active matrix, in their color prototypes.

"Supertwist technology lends itself quite well to the power profiles of laptops," explained Kevin Mankin, director of product development at Zenith Data Systems in Glenview, Ill. The drawback, he said, is that this is a multiplexed approach, whereby screen pixels must be refreshed to stay active. "So, it's slow. You need long-persistence phosphors, and the color is a little washed out," he said.

Zenith's prototype used a Hitachi Electron Tube Division display. "Our product is in production, and we'll be shipping tens of thousands of pieces this year," said Tim Patton, business planning manager at the Chicago-based Hitachi division. Patton said the 6.3-in. display is avail-

Continued on page 42

Inside

Publisher's PC system liberates blind users

ON SITE

BY RICHARD PASTORE
CW STAFF

BOSTON — Imagine sitting down at your workstation for a first-time session of C programming. When you open your language guidebook, the pages are blank. You try to set up your new laser printer — but there is no manual to show you how.

Seems like a nightmare, doesn't it? For the growing community of blind computer users, it is a frustrating reality.

"What blind users critically need is manuals," said William M. Raeder, managing director of the National Braille Press, Inc. (NBP), who is himself blind. His nonprofit press publishes braille versions of hardware and software manuals, reviews and guidebooks. About one-fifth of its titles last year were computer-related, putting NBP in the lead in this category among U.S. braille presses.

Meanwhile, some of the same high technology that the blind community seeks to access is powering NBP's braille production process. At its heart are eight PC Genius IBM compatibles based on Intel Corp. 80286 microprocessors, which replaced two Digital Equipment Corp. PDP-11/34 minis in December. They sit juxtaposed with decades-old hand presses and stitching machines in the 62-year-old company's cramped Boston brownstone offices.

Continued on page 42

STELLA JOHNSON

NBP's Raeder *commands high-tech braille translation*

e Interrupt T
War For This Im

To all those unlucky enough to be stuck smack in the middle of the current spreadsheet confusion, take heart.

There is, at last, a viable alternative to war: revolution.

One that delivers even more performance than you have (ahem) been waiting for, but without demanding expensive new hardware or extensive retraining. And without abruptly cutting you off from any user in your company, even those on mainframes.

The name of the spreadsheet is SuperCalc®5.

And what it can do for you is, frankly, quite revolutionary.

Let's begin at the end. Stand-alone quality graphic capabilities have been built in.

Present a state-of-the-art picture of your work.

Link just about everything in sight.

Offering hundreds of presentation treatments from word charts to three-dimensional bar, pie, scatter, and polar graphs.

And with SuperCalc5, you select fonts, lines, boxes, grids and shading. All of which can be used to produce the highest quality customized reports.

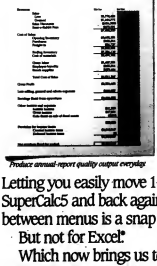
Plus, SuperCalc5 actually makes productivity easier. An integrated Undo feature simply reverses unwanted commands. And a truly comprehensive system of debugging highlights costly errors and analyzes macro logic.

Perhaps even more impressive is the way SuperCalc5 can link spreadsheets. Up to 255

Catch bugs before they come back to bite you.

ne Spreadsheet portant Update.

to be precise. Linking either in memory or on disk, either pages of the same spreadsheet or independent, either SuperCalc5's files or Lotus® 1-2-3®'s.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Produce annual-report quality output everyday.

Which brings us to the "L" word. SuperCalc5 not only reads and writes Lotus® 1-2-3® files, it totally coexists with Lotus.

Letting you easily move 1-2-3 macros into SuperCalc5 and back again. Even toggling between menus is a snap for SuperCalc5.

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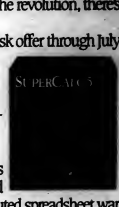
Which now brings us to the "E" word. Unlike Excel, SuperCalc5 runs on all IBM® and compatible computers but also takes full advantage of 286 and 386 machines when *you* decide to make that transition.

And if all that isn't enough to make you run out today and join the revolution, there's even more incentive.

Like our free demo disk offer through July 31, 1989. And our $100 upgrade offer for just about any spreadsheet you're using. Call 1-800-531-5236. In Canada call 1-800-663-6904.



Which finally brings us to our admittedly biased outlook for the much touted spreadsheet war.

With SuperCalc5, peace is at hand.

COMPUTER ASSOCIATES

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Museum breaks free of database backlog

ON SITE

BY MICHAEL ALEXANDER
CW STAFF

NEW ORLEANS — Museums have been generally slow to automate their collections management systems because of the quantity and diversity of the data to be computerized.

It is not uncommon for a museum to take 10 years to build a database, according to Jane Sunderland, a vice-president of Willoughby Associates Ltd., a Los Angeles consulting firm that specializes in automating museum collections.

Now, Willoughby is working with the Historic New Orleans Collection (HNOC), a history museum and research center, on a project to build a database of objects in its collection and overcome a daunting backlog.

Museum records are not standardised, and museum staffers are not data processing experts, Sunderland said. There are few cataloging standards that exist among museums, and individual objects are often documented on many separate forms. The museum hopes to have 100,000 items in its database by the end of May.

Willoughby has been using Datelex, Inc.'s Entrypoint 90, an applications development tool for creating data entry systems. Entrypoint 90 is fast and flexible and can accommodate descriptions of objects and other inconsistent formatted data, according to Sunderland.

"[The Historic New Orleans] collections are images: drawings, engravings, photographs, paintings, maps, for example," she said. "Each item must be assigned an accession number so that it can be identified, and basic information about it must be entered into the database. It is critical to get inventory-level information as fast as possible."

A pleasant surprise

The museum was pleasantly surprised by the ease of use and performance of Entrypoint 90, which it runs on Hewlett-Packard Co. Vectras with 640K bytes of memory, said HNOC systems manager Chuck Patch. Once a group of objects has been assigned accession numbers and information about each item has been entered into Entrypoint, the file is uploaded to a permanent database on an HP 3000 minicomputer.

The database management system "is excellent but is about 10 years old and does not offer much in the way of a human interface," Patch said. "We had been waiting for a third-party piece of software and started using Entrypoint as a stopgap measure." The package has proven so powerful and easy to use that HNOC will stay with it, be added.

Entrypoint 90 has a paint-the-screen editor and menu-driven developer that enable museum systems staffers to design data entry screens quickly with powerful editing capabilities. During data entry, customized error messages, application-specific prompts, user-defined

Continued on page 49

Lights! Camera! Execute key!

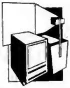
Multimedia packages help users create entertainment, presentations

ANALYSIS

BY JULIE PITTA
CW STAFF

It's unlikely that they'll win an Oscar at next year's Academy Awards, but computer users can create their own entertainment using multimedia software.

What they're creating are flashy presentations for the business world. At the Industrial Products Division of Hughes Aircraft Co., Russell Yanda and his team have created a computer-generated presentation for the company's sales team.



"I have very little art background," Yanda said. "I'm more of a hacker type."

To make a 35-minute show, Yanda is using an Apple Computer, Inc. Macintosh IIx with 8M bytes of memory; Director, multimedia software from Macromind, Inc.; and Mac Recorder, a sound recording product from Farrallon Computing, Inc. A color scanner transfers images from brochures into the Mac. Director brings the images to life.

A relative newcomer to the market, multimedia packages incorporate audio and visual elements in the user interface, explained Nick Arnett, an analyst at Creative Strategies, a Santa Clara, Calif., market research firm. Apple's Macintosh — with its graphical user interface — has become an attractive platform for multimedia developers.

Hypercard, Apple's relational database, has optimized the Mac for multimedia applications. Hypercard lets users combine text, graphics and sound to create customized databases. Most multimedia packages offer drivers linking the application to Hypercard. "Hypercard has become the foundation on which you glue the rest," Arnett said. "It's becoming required equipment."

Apple Chairman and Chief Executive Officer John Sculley presented "HyperTV," an example of a state-of-the-art multimedia application running on the Mac, at January's Macworld Expo. Sculley demonstrated video windows running on a Mac IIX. A video recorder connected to the Mac IIX sent real-time images to the computer, which then projected them on a large viewing screen.

A corporate user attending the speech was impressed: "It's real slick." However, be said he might be reluctant to use such a prop himself. "It takes a lot of guts to get up there like he did and make a presentation in real time. Most managers wouldn't take that chance," he said.

San Francisco General Hospital has used Macromind, Inc.'s Videoworks running on a Mac II to create a tutorial for interns specializing in hand surgery. The presentation features an animated image of a hand created using Videoworks. Viewers can slow down the image or zoom in to get a better view of the procedure taking place.

Macromind based its business on multimedia packages for the Mac. It recently began shipping an enhanced version of Videoworks called Director that offers more sound, animation and video for $695.

Aldus Corp., Cricket Software and More, Inc. offer products with some multimedia capabilities. However, the average user may have difficulty incorporating animation and sound into what are "highly visual" programs, Arnett said.

Some companies have specialized in a certain media, such as Farrallon's Mac Recorder, which lets a computer record and replay user narratives. A microphone and a analog-to-digital converter allow users to speak to the Mac. Screen Recorder, which is an accompanying package, records and replays screen data. Both cost about $200.

While Mac-generated presentations have achieved widespread acceptance within many corporations, multimedia packages are new to many.

"We're not using sound or much animation," said Della Steen, a systems analyst at Chevron Chemical Co.'s MIS group. However, computer-generated presentations have replaced slides. "It costs between $8 and $15 to create a slide," Steen explained. "We can use a $5 PC diskette over and over."

"It's kind of time-consuming for in-house presentations," said Jim Hayes, PC manager at Seafirst Bank. "We're conservative — we're still using overheads and handouts."

Market embraces speedy 33-MHz version of 80386

BY DOUGLAS BARNEY
CW STAFF

Makers of personal computers revved their processing engines at the recent Comdex/Spring '89 show, with 13 firms announcing products built on Intel Corp.'s new 33-MHz 80386 processor.

The extra notch in speed will be handy for many tasks, particularly for file and database server applications and as the basis of Unix-based multiuser microcomputers. Single-user-oriented applications include computer-aided design applications such as Autodesk, Inc.'s Autocad, image processing, working with large databases and spreadsheets and running sophisticated graphical user interfaces such as Microsoft Corp.'s Windows and OS/2 Presentation Manager.

The 33-MHz chip was announced in conjunction with the Intel I486, a supercharged version of the 80386 set to run at 15 to 20 VAX MIPS. Machines based on the I486, however, will not ship in volume until the first quarter of 1990, predicted analyst Aaron Goldberg, vice-president of International Data Corp. in Framingham, Mass.

For those unwilling to wait until those machines ship, the 33-MHz systems are essentially the fastest game in town. By Microsoft Chairman Bill Gates' calculations, the newest 80386 is almost three times faster than the original, which debuted three years ago.

Among those announcing 33-MHz machines are:

- Acer Technologies Corp., with three machines ranging from $8,995 to $12,195.
- Advanced Logic Research, Inc., with machines ranging from $3,995 to $15,990.
- Altos Computer Systems, with a Unix-based multiuser system.
- AST Research, Inc., with machines from $6,595 to $11,195.
- Everex Systems, Inc., with its Step 386/33 computer.
- Ogivar Techoologies, Inc., which announced a machine but has not yet set pricing.
- Philips Electronics Ltd., with machines ranging from $10,500 to $14,995.
- Tandon Corp., with machines that start at $6,200.
- The Olivetti Group, with its M380/XP9.
- Zenith Data Systems, with machines ranging from $7,999 to $13,499.

Three motherboards were also announced by the following vendors:

- American Megatrends, Inc. with its 33-MHz motherboard for $3,995.
- Hauppauge Computer Works, Inc., with its $4,495 motherboard.
- Micronics Computers, Inc., with its $4,500 motherboard.

Both IBM and Compaq Computer Corp. announced support for the chip but failed to introduce products because the chip has yet to ship in large quantities, analyst sources said.

Stage left

Intel Corp.'s I486 grabbed the limelight at Comdex/Spring '89 recently, but Intel made other announcements aimed at strengthening its line of processors for personal computers.

The recently shipped 33-MHz 80386 is the closest thing Intel has to the I486. The chip runs 33% faster than earlier 80386 processors; Intel claims a speed of 8 VAX MIPS.

A faster math coprocessor is also available to work with the 33-MHz 386. The 33-MHz chip sells in quantities of 1,000 for $367 each, and the math coprocessor is priced at $497. Together, they cost $864, only $86 less than the I486.

Intel also announced a low-power consumption version of its 80386SX chip. The 386SX runs 32-bit software but uses a 16-bit data bus for lower cost and to work with a broader array of peripherals and boards. The chip is aimed at high-performance laptop computers and costs $107 each for quantities of 1,000. For clone makers, Intel will support the I486 with its Extended Industry Standard Architecture chip sets and its Micro Channel Architecture chip sets, the company said.

DOUGLAS BARNEY

Color LCDs

CONTINUED FROM PAGE 37

able for $750 in quantities of 1,000.

By comparison, active matrix screens dedicate electronics to each pixel, resulting in vivid colors and a wider viewing angle. At Comdex, Zenith showed a 7-in. diagonal active matrix screen in a TurboSport 386. The IBM Color Graphics Adapter-resolution prototype was using battery as well as AC power.

Mankin, who said Zenith is still investigating all flat-panel technologies, emphasized that the panel itself is just one of five elements: LCD panel, backlight, diffuser, inverter power supply and LCD controller. "You have to design all five properly for a good display," he said.

Toshiba color laptop *has no ship date*

Garnering perhaps the most attention at the otherwise tame show was Toshiba's modified T5200, which had been outfitted with a full-size active matrix color screen. The 11-in. diagonal screen had a 16-color, 640- by 480-pixel resolution, VGA-compatible display. Toshiba also demonstrated a 720- by 550-pixel resolution, stand-alone color LCD. Officials were careful not to predict when the displays will be seen in commercial products.

Sharp's Bongiorno countered that he was not overly impressed. "We have prototype active matrix screens and show them at consumer electronics shows," he said. "But it's our opinion that they will not hit the market soon because you can't manufacture them in volume."

> GARNERING perhaps the most attention at the otherwise tame Comdex show was Toshiba's modified T5200, which had been outfitted with a full-size active matrix color screen.

At least one vendor, Planar Systems, Inc., is pursuing a third approach for color displays and has demonstrated a color electroluminescent screen for a year and a half. Planar's goal is to have a commercial product within two years, according to Jeff Oromaner, vice-president of sales and marketing at the Beaverton, Ore.-based firm. Oromaner said the display, which Planar is now shipping in limited quantities to military customers, will cost about twice as much as today's monochrome electroluminescent screens.

Monochrome backlit, supertwist LCDs cost around $250, and most observers agreed that color LCDs — which include the LCD itself and associated electronics — will be 2½ to four times more expensive than monochrome versions. This will increase the retail price of laptops by 25% to 30%.

Monochrome LCDs currently hold the lion's share of the laptop market, with 45% of the 1.1 million to 1.7 million flat panel displays shipped last year, according to Fabio Arcuri at Venture Development Corp., a market research firm in Natick, Mass. Plasma displays held 20%, and electroluminescent displays held 5% of the market, Arcuri said.

Barney

CONTINUED FROM PAGE 37

the even worse side. The bad side is the increasing number of software companies that are suing their fellow coders for copyright infringement. They say that other pieces of software look and feel like theirs.

Under the current copyright law, software is still not much different from a novel. You can copy the plot, but you can't duplicate the expression. Under the law, these companies have a perfect right to sue competitors that copy too closely.

The even worse side is the effect these suits have on customers. Because of training issues, PC users often want software that looks and feels like other pieces of software. They don't want arbitrary differences. Besides, software is completely different from a novel. Nobody wants all novels to be alike unless they don't like to read.

These lawsuits do other rotten things to the industry. They destroy healthy competition, which is why clonable hardware is so cheap and unclonable software so expensive. And they actually slow the pace of change.

Now, the suers will argue with mild eloquence that their suits force software companies to innovate rather than steal. But that is just not how software evolves. You want to add features and improve performance while preserving all the training the users have been put through. They simply will not unlearn what they know to try a new package. They will, however, gladly buy a package just like the one they know, only better.

It keeps getting worse. Ashton-Tate is now trying to protect a computer language that it did not even invent. Increasingly, the courts seem to be backing the suers.

At first, customers were frightened by the suits and stayed away from the offending products and products that might be offensive in the future. In fact, Lifetree Software's fine Words & Figures has been almost completely bumped out of the market because people are afraid that it may be the subject of a future suit. Lotus has largely succeeded without even going to court. This example may explain Ashton-Tate's threats toward products it feels *may* infringe but which it has yet to bring to court.

There is a semigood side, however. The same customers who are fed up with these suits are no longer scared. So when Apple sued Microsoft over Windows, sales actually went up. And so far, nobody has backed off development of Windows lookalike Presentation Manager applications on account of the recent lawsuits.

Even Ashton-Tate Chairman Ed Esber continues work on Pman applications. I just hope they don't look too much like somebody else's.

They say it like it's a good thing. Microsoft recently announced the completed Software Development kit for OS/2. That is a very good thing.

> QUARTERDECK even has a patent on windowing and multitasking. What's next? A patent on VDT-induced eyestrain?

But in the very same breath, the firm appears to be bragging about the size of this critter. In a facts-and-figures chart, the firm lists the weight of the kits at a back-breaking 75 pounds, the number of disks at 160 (including updates) and the total documentation at 25,000 pages. My editor would kill me if I wrote that much.

It is this very bulk that has held up a handful of OS/2 projects. In the early days, we interviewed kit recipients who could not find room in their offices for it and therefore couldn't use it. This was a particular problem in urban areas, where rents are high.

Now Microsoft is prepping a developer's kit for the Intel 80386 version of OS/2. Neither the weight nor ship date has been announced.

Barney is a *Computerworld* senior editor, PCs & workstations.

Blind users

CONTINUED FROM PAGE 37

Most of the texts NBP acquires for translation from outside sources, as well as its original material, start out on disk. Packaged and custom programs then strip these text files of any conventional printing codes, format the files for braille output and dump them into an electronic braille-embossing machine.

It is an uncommon system, according to Raeder. "We are one of the few braille houses in the world taking advantage of this technology; we've been doing it for about 10 years," he said.

Apparently, the system is as efficient as it is rare. "We had a 60% increase in braille transcription from 1980 to '81, when we installed the minicomputers," Raeder said. He expects the mini-to-micro switch to achieve an additional 20% growth.

In precomputer days, by contrast, manual translation and typing hobbled braille production speeds. Errant braille dots had to be hammered out of metal sheets by hand.

Eileen Curran, NBP's technical development manager, said the shift to workstations has "made an incredible difference. For me to write a new subprogram on the PDP-11, I'd literally have to set aside a few days. Now, I can do the same amount of work in a day."

Of course, it is the blind community — including an estimated 3,000 computer users — that ultimately benefits from the system, according to NBP. They can now, or will soon be able to, read NBP translations of such industry landmark titles as *The C Programming Language* by Kernighan and Ritchie, *Mastering DOS* by Robbins and *Oh! Pascal* by Cooper and Clancy.

In the next year, NBP will further its foray into synthesized voice production, refining the speech patterns of its DEC Dectalk unit. "We want the voice to pause to signify a new paragraph, for example," Raeder said, "and that means massaging the text files by creating new [subprograms] for the translation software."

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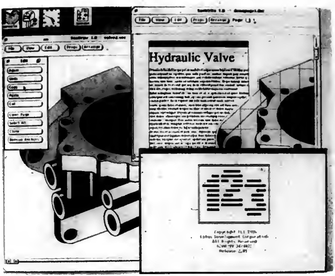

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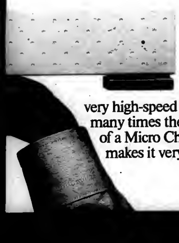

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The SPARCstation 1 has a new very high-speed bus that delivers many times the performance of a Micro Channel bus. Which makes it very easy for your SPARCstation 1 to expand, connect and communicate with other devices. From Laser Printers to Ethernet gateways.

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In addition, with DOS Windows,™ a SPARCstation 1 can easily satisfy the needs of the casual DOS user who occasionally needs to access DOS applications and files. You can even cut and paste between your DOS and SPARCware applications.

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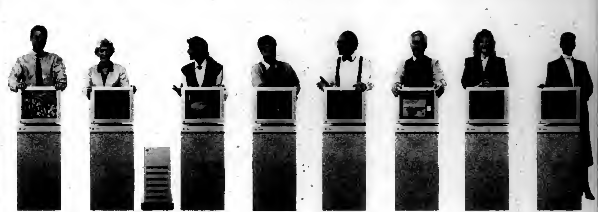

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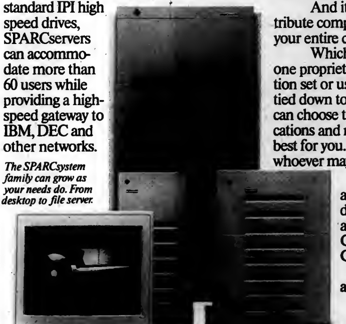

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Big guns shun initial Macdex

BY JULIE PITTA
CW STAFF

CHICAGO — "It was the who aren'ts of the Mac market."

That was the assessment of one spectator at the recent Macdex show, the Interface Group's attempt to expand Comdex/Spring '89 with a separate exhibit area for third-party developers of Macintosh products. The sounds heard emanating from the southwest corner of McCormick Place/East reportedly were not the chatter of excited attendees but rather the grumbles from two dozen disappointed exhibitors biding their time alongside empty aisles.

It may be that consumers have tired of trade shows — both their frequency and the price of attendance. There were three Mac events scheduled in April, and Interface charged Comdex attendees an extra fee to enter Macdex conferences.

For its part, the Interface Group refused to admit defeat. "Like with anything else, when you plant the seed of an idea or a show, it takes a period of time for it to grow," said Jason Chudnofsky, president and chief executive officer at Interface. "We want to make sure we give it all the nurturing we can." He said Interface will hold the second Macdex in conjunction with Comdex/Fall '89 in November in Las Vegas.

Others begged to differ. "There was no attendance to speak of," said Maureen Blanc, president of Blanc & Otus, a San Francisco public relations firm. "Two of my clients spoke at technical sessions. There were more people on their panels than in the audience."

Apple Computer, Inc. skipped the show. "We can only go to so many trade shows each year and we never go to spring Comdex," an Apple spokeswoman said.

The big names in the Mac market also passed on Macdex. Microsoft Corp. and Ashton-Tate Corp. did not exhibit at Macdex and Comdex/Spring. Borland International rented a room off the Comdex show floor.

In an attempt to lure attendees over from Comdex to Macdex, Interface knocked down partitions separating it from the other event. The guards that checked attendees for their separate Macdex badges had also vanished by Tuesday.

Museum

FROM PAGE 41

Help and data entry screens modeled on museum input forms help guide inexperienced users.

The amount of information that must be entered in the database seems insurmountable at times. The curatorial division is entering data on visual objects, including 200,000 photographs, prints, paintings and maps; the manuscript division has 8,000 linear feet of documents and 8,000 reels of microfilm waiting to be entered, and the research library must catalog more than 35,000 books and pamphlets. Each item goes through an elaborate review before it becomes part of the collection.

There may be as many as 15 or 16 screens' worth of information about the object to be entered into Entrypoint and uploaded to the mini. Additional information about the object may be entered in the permanent database by curators and catalogers who check the validity of each object's description.

Willoughby recommended that the museum adopt a retrospective strategy with the immediate goal of reducing its backlog. The strategy aims to ensure that basic information about each item is entered in the first pass. When the backlog is under control, only then is additional information entered. Entrypoint 90 helps alleviate the backlog because it makes it easy to enter repetitive data, allowing for automatic duplication from one record to another with a minimum of keystrokes.

NEW PRODUCTS

Software applications packages

A modeling information software system for engineers working with IBM Personal Computers or compatibles is available from C and N Associates.

The Emis-3D integrated package allows the user to position each three-dimensional model element spatially in a graphical display and create a database simultaneously for physical descriptions, the vendor said.

Additional features reportedly include output of material takeoff lists and automatic updating of cross-referenced drawings to reflect modifications. The package is priced at $4,500.

C and N Associates
P.O. Box 8686
Red Bank, N.J. 07701
201-671-0539

An integrated image database package has been released by PC Manager, Inc.

PC Album reportedly allows users to include full-color images along with traditional textual database information. Users can enter, view, query and report without having to write any code, the company said. The software works on several image capture-and-display boards, including Truevision, Inc.'s Targa 16 and Discrete Timesystems, Inc.'s CVP-2000. PC Album is priced at $795.

PC Manager
6330 Boone Blvd.
Vienna, Va. 22180
800-654-5845

Alpha Software Corp. has introduced a microcomputer-based relational database management system developed specifically for nonprogrammers.

Alpha Four reportedly allows users to link up to 10 databases in a relational set that is then treated as a single database. Users can also design their own applications, custom menus and Help screens, the company said.

The software package is available now and is priced at $549.

Alpha Software
1 North Ave.
Burlington, Mass. 01803
617-229-2924

Remarkable Products has announced Version 1.60 of Knock Out, its software tool for business organizational purposes.

The program reportedly runs on IBM Personal Computers and compatible systems and provides users with daily, weekly and monthly schedules. Additional features include print mailing capabilities and periodical reminders, the vendor said. The software also runs in a laptop environment and costs $49.95.

Remarkable Products
245 Pegasus Ave.
Northvale, N.J. 07647
201-784-0900

Vertex Systems, Inc. has announced the debut of a software package designed to maintain sales tax exemption certificate files.

The Salestax Exemption Manager creates a sales tax exemption certificate file that gives the user complete file update capabilities, the vendor said. The file reportedly organizes all pertinent data, including customer identification, certificate number, expiration date and customer contact.

The program is available for IBM Personal Computers and compatible systems at an introductory price of $345, according to the vendor. Cobol and RPG III versions are also available for automated mainframe billing systems.

Vertex Systems
1041 Old Cassatt Road
Berwyn, Pa. 19312
215-640-4200

Software utilities

Symsoft Corp. has introduced Hotshot Presents, a presentation graphics software package for interactive presentations on projection systems, the company said.

The program runs on IBM Personal Computers, Personal System/2s and compatibles and offers support for most laser printers, according to the vendor. Features include a bidirectional outliner, template creation and zoom and pan capabilities. It requires 640K bytes of memory and a hard disk and costs $349.

Symsoft
444 First St.
Los Altos, Calif. 94022
415-941-1552

Macintosh products

Multi-Ad Services, Inc. has announced a professional advertising layout program designed for Apple Computer, Inc. Macintosh users.

Called the Multi-Ad Creator, the product is intended for fast ad layout and precise typographic control of single-page, art-intensive documents, the company said. Target industries include newspapers, advertising agencies, graphics designers and retailers.

The package costs $995, and volume discounts are available.

Multi-Ad Services
1720 Detweiller Drive
Peoria, Ill. 61615
309-692-1530

A database software program specifically designed to manage information pertaining to speeches and presentations is now available from Computer Solutions, Inc.

According to the vendor, Presentation Passport keeps track of presentation length, supporting materials used and audience response. The software runs on Apple Computer, Inc.'s Macintosh Plus, Macintosh SE or Macintosh II and requires a minimum 1M byte of random-access memory. A hard disk and printer are recommended.

The program is priced at $89.95 and is not copy-protected.

Computer Solutions
1261 N. Court
New Brighton, Minn. 55112
612-698-6934

Development tools

The Software Marketing Group at Salford University Computing Services has obtained ANSI validation for its Fortran 77 compiler.

Designed for Intel Corp. 80386-based machines, the FTN77/386 compiler reportedly uses a Salford-developed DOS extender that allows programs to occupy and address up to 4G bytes of random-access memory. The software is distributed exclusively by OTG Systems, Inc. and is priced at $1,095 per CPU license.

OTG Systems
Suite 300
P.O. Box 5250
308 Mulberry St.
Scranton, Pa. 18505
717-343-8200

Lattice, Inc. has reduced the price of its Dbc III Plus Library of C functions, the company said.

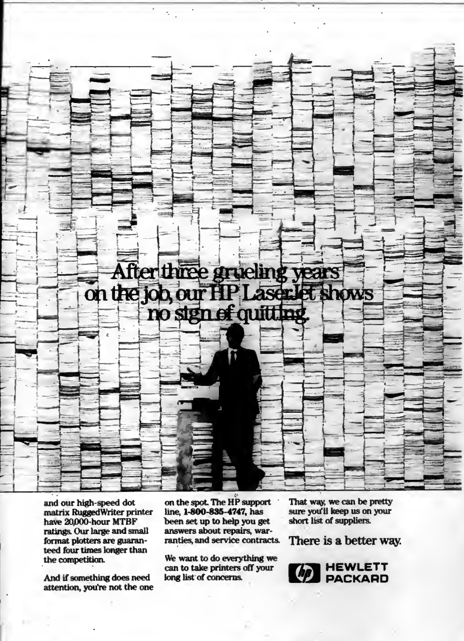
Designed for C programmers, the library, previously priced at $750, now costs $500. The package allows database programmers to replace Ashton-Tate Corp.'s Dbase III Plus modules and applications with faster programs written in the C language.

Lattice
2500 S. Highland Ave.
Lombard, Ill. 60148
312-916-1600

Drasch Computer Software has consolidated its line of C development tools.

Effective June 1, the Crules library of functions will be merged into the company's LISP library and programming environment, Clisp. The vendor has also added a rule-based, natural language interface written in C. The combined package will cost $349.

Drasch Computer Software
187 Slade Road
Ashford, Conn. 06278
203-429-3817



These men started a revolution on campus.

Recently, an information management revolution occurred at the University of Wisconsin–Stevens Point. Dan Goulet from the University and Jim Leonhart of AT&T—campus radicals of a different kind—explain how they were able to realize a bold and complex vision.

FEBRUARY 22, 1989

Jim: I remember the first day we met. You had been around the block a few times, but weren't getting the answers you needed.

Dan: *We wanted to create a unique education environment: a free-flowing on-line computer campus. We had a vision, and we were looking for someone to help build it.*

Jim: A distributed networked computing solution, that's what we'd call it now: a way to process, move and manage information effectively, throughout a widespread organization.

Dan: *We talked to many computer vendors before you. We got tired of describing what we needed, so we drew it. That graphic was about 13 feet long.*

Jim: More like twenty. The chart showed every information resource on campus linked together, accessible to students, faculty, and administration. It became the wallpaper in my office for fifteen months.

Dan: *It was like a blueprint for a data superhighway.*

Jim: We put our ISN wide-area network at the center—like an interchange—and built fiber and twisted-pair data lanes to applications running on AT&T 3B2s, DEC, UNISYS and other hosts located in all the departments. We put on- and off-ramps in strategic locations: StarLAN networks that gave access to the highway from workstations.

Dan: *We designed everything from the user perspective. The more technically remarkable the system became, the harder we worked to make it approachable.*

Jim: Easy for novices, powerful enough for programming students.

Dan: *We developed a menu-driven user interface that is consistent and clear. Students and faculty can select applications like checking spelling, transmitting course grades, even browsing through the on-line card catalog of 1.5 million books at the University of Wisconsin–Madison. We wanted desktop power and access, but we wanted to process information where it made the most sense.*

Jim: Thinking back, we realized early that the complexity of your vision precluded a single-system focus. You needed open systems.

Dan: *You were really the only ones that understood this point. Open systems allow us to use off-the-shelf components; vendors have to bid against each other to get our business. Open systems are the secret.*

Jim: It's mind-boggling how much computer power is out there. We wanted to harness it all, yet give a piece to every individual.

Dan: *A truly distributed network, one we don't think we'll ever outgrow. We've added 300 WGS workstations in the last five months.*

Jim: Dan, where in the world is that wallpaper today?

Dan: *We had it bronzed. Today, so many colleges and businesses really need a similar solution. That's probably why we've had so many visits from them lately.*

Jim: Little did we know back then, when we first met.

Dan: *Oh, something tells me you had a hint.*

The Stevens Point Solution:

THE CHALLENGE

Create a distributed computing revolution; link the campus into an integrated information resource open to every user.

THE SOLUTION

AT&T 3B2 computers support a multitude of UNIX* System V-based applications. AT&T StarLAN connects AT&T WGS computers, a variety of micros, and hosts together. The AT&T Information Systems Network (ISN) is every campus user's gateway to all computer resources.

THE RESULT:

Stevens Point has been designated a Center of Excellence for Distributed Academic Computing by the Board of Regents for the entire University of Wisconsin system. The majority of the 9000 students on campus regularly use the network for coursework and homework. Faculty have integrated computing into 41% of their coursework.

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General DataComm

NETWORKING

DATA STREAM

Thomas Nolle

Bucking the odds

Second of two parts.

Remote procedure calls (RPC), as described last week, would simplify the task of developing distributed programs considerably, but they face several barriers in their path to acceptance.

First, because Unix is not at the heart of mainstream commercial data processing, its terms and concepts are unfamiliar to information systems planners. Certainly, few firms will convert to Unix simply to access RPC support, and there is no assurance that RPC will migrate to more traditional environments. There are some disputes about the advisability of using RPC, even among Unix users and vendors.

The good news is that not all RPCs are Unix-based. Netwise, Inc. in Boulder, Colo., offers a set of RPC tools that are largely independent of operating and networking environments. An upcoming Microsoft Windows version will work with IBM's Netbios, Novell's Netware SPX and Banyan networks. Novell has licensed Netwise's RPC, as have Prime and Wang.

The second issue is one of standards. Clearly, RPC is picking up support. The February RPC demonstration at the Uniforum show used a system developed by Apollo Computer, based on the firm's Network Computing System (NCS). Arch-

Continued on page 59

NET gets off its backbone

ANALYSIS

BY ELISABETH HORWITT
CW STAFF

Key introductions made recently by Network Equipment Technologies, Inc. (NET) should allow the vendor to branch off from its established T1 backbone business into areas where user demand is just starting to burgeon, such as hybrid networks, T3 networking, fractional T1 networking, interconnectivity and third-party network management.

Worldwide T1 multiplexer revenues are scheduled to almost double in the next four years, from $581.9 million in 1989 to $1.1 billion in 1993, according to "T1 Network Industry Analysis, 1989," a report by Vertical Systems Group. But the market is crowded and fragmented, making diversification the best strategy for continued revenue growth, said Timothy Zerbiec, a principal at the Dedham, Mass., research firm.

The problem is timing: Some NET introductions may be ahead of demand, Zerbiec said. For example, the company announced a first-quarter 1989 shipment for its IDNX/90, a switch that is said to support 45M bit/sec. T3 links. Unlike some T3 products, which can only support multiple individual T1 lines within a 45M bit/sec. channel, the IDNX/90 is said to merge multiple T1 channels into a single link of 3M or 4.5M bit/sec., for example. However, demand for such high-speed connections will not take off for about two years, Zerbiec said.

Local- to wide-area network bridging is one area that demands wideband connections, according to NET Vice-President of Strategic Marketing Robbie Forkish. NET plans to resell a Cisco Systems, Inc. bridge router and then incorporate the products' capabilities into the IDNX line by mid-1990, he added. Few existing bridges support speeds higher than 1.5M bit/sec., which can seem slow to LAN users, Forkish said.

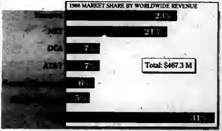
LAN-to-WAN connectivity is "the biggest area of growth for the T1 multiplexing industry," Zerbiec said. "In the next five years I predict that users will focus on how to connect applications to their backbone networks, while in the last five years they concentrated on just setting up those backbones."

Another NET product, the IDNX/10, addresses the embryonic market for fractional T1 — bandwidth composed of multiple 64K bit/sec. channels, for sites whose network traffic is not high enough to justify a full T1 link. While several users voiced a strong need for such a capability, the scarcity of fractional T1 ser-

Continued on page 58

Fragmented market

NET is a close second and well ahead of the pack in the T1 multiplexer race



SOURCE: VERTICAL SYSTEMS GROUP

CW CHART: JOHN YORK

Retailer's service wins corporate accounts

BY PATRICIA KEEFE
CW STAFF

Would you entrust the care and support of your local-area network to a computer reseller? If the very thought gives you the beebie-jeebies, you're not alone.

Mediocre to nonexistent support is the major reason many Fortune 1,000 network managers will not purchase LAN technology from dealers.

While vendors are clearly making an effort to boost the comfort factor, for those willing to look, there are value-added resellers specializing in LANs who provide able service and support.

Many users prefer to deal with a nationally recognized entity such as San Jose, Calif.-based Businessland, Inc., which was ranked first in *LAN Magazine's* annual LAN 100, a listing of the top 100 U.S. and Canadian LAN dealers.

Businessland's Advanced Systems networking group has a total installed base of 6,000 LANs, with more than 100,000 nodes serviced by more than 100 systems engineers.

Numbered among Businessland's LAN clients are American Express Co.; Pillsbury Co.; Pepsico Food Service International, a division of Pepsico Canada in Toronto; and Norwest Corp., a financial services firm based in Minneapolis.

"Businessland helped us out tremendously in evaluating products for our new downtown headquarters; they held our hand all the way," said Barbara Hessey, a manager at Norwest's Technical Services subsidiary.

Businessland has developed a range of network consulting, installation, service and support programs that include the following:

- **Expertlan Planner.** For a fee, users are provided with an analysis of their networking needs, a design recommendation and an estimate of installation costs and timing. There is no obligation to buy the network from Businessland.
- **Gold Plan.** This plan allows the user to customize support and service to fit its needs and capabilities. Some users parcel

Continued on page 59

Met Life seeks extraterrestrial help

BY ROBERT MORAN
CW STAFF

NEW YORK — Metropolitan Life Insurance Co. learned the hard way that terrestrial communications are vulnerable.

Although the organization had its own backbone network, last May it lost a week of data services and two weeks of voice services as a result of a fire at an Illinois Bell hub station in Hinsdale, Ill.

To prevent a recurrence, Metropolitan Life recently signed a $3.8 million contract with Contel ASC in Rockville, Md., to build an integrated satellite network that will back up its terrestrial network.

July target

Contel ASC will install and operate the network, which will link the insurance firm's headquarters to regional data centers in Scranton, Pa., Greenville, S.C., and Wichita, Kan. The network is scheduled to be running by July, according to Metropolitan Life.

"The Hinsdale fire showed the vulnerability of communications," said Daniel Cavanagh, senior vice-president in charge of information systems at Metropolitan Life. "We had our own backbone network and recovered very quickly, but even the slight interruption drove home the importance of keeping a contingency plan."

Metropolitan Life began using Contel ASC's satellite services in 1979 to transfer batch files among its computer centers. "We used satellites before the words 'bypass' and 'alternate access' became popular," Cavanagh said.

Satellite backup

As the company replaced the satellite network with a fiber-optic terrestrial network, it saw the need to apply satellite technology as a backup network, Cavanagh said.

"We wanted to guarantee that our disaster recovery plan covered the contingency of losing communications for both data and voice," explained Darlane Hoffman, manager of telecommunications at Metropolitan Life.

In addition to Metropolitan Life's use of the satellite network for backup, processing centers in Utica, N.Y., Aurora, Ill., and Denver will host Earth stations to link them to Greenville, which is the point of origin for data related to the company's group health insurance claims checks. The Earth stations are intended to provide the processing centers with digital connectivity for high-speed remote printing.

"The satellite system will allow us to reconfigure end points on demand for backup, print and future applications," Hoffman said.

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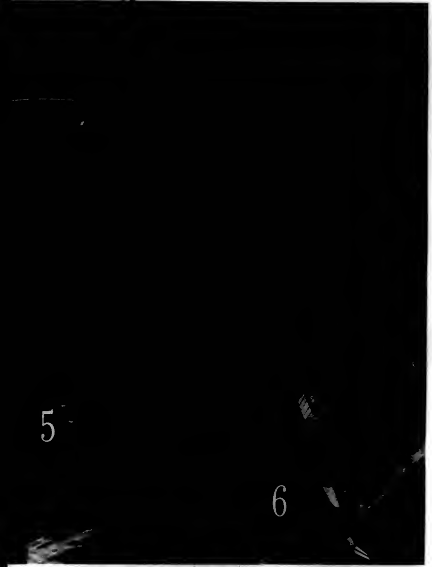
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Definity speeds hot-site switch

ON SITE

BY ELLIS BOOKER
CW STAFF

SAN RAMON, Calif. — Comdisco Disaster Recovery Services has discovered a method of getting its customers' hot-site facilities on-line more quickly — through AT&T's Definity PBX and Integrated Services Digital Network (ISDN) Primary Rate Interface service.

The company, a subsidiary of Rosemont, Ill.-based Comdisco, Inc. and an early user of AT&T's new Definity private branch exchange (PBX), is using AT&T's Call-by-Call Primary Rate Interface (PRI) service on one of two T1 lines entering its San Ramon Disaster Recovery Center. With Call-by-Call, the center can reconfigure on demand the 23 64K bit/sec. lines on the T1 into a mixture of AT&T's Megacom, Megacom 800 and Switched 56 services.

"We have a parade of customers into the several hot sites at the center, and every one needs to reconfigure their channel capacity," said John Schladweiler, vice-president of business development.

Prior to PRI, he said, the center needed to maintain permanent and sometimes unused communications facilities to ensure that when a customer had to switch his data operations over to his Comdisco hot site, telecommunications links to that site would go on-line quickly.

The ISDN connection makes those links immediately available, and the Call-by-Call configuration feature allows customers to choose the type of link from AT&T services. One T1 entering the center is configured with the PRI service; the other uses AT&T's Accunet Reserve.

Schladweiler said Comdisco hopes to realize cost savings of around 30% because of the ISDN architecture. He said PRI service is a "next logical step" at Comdisco's Carlstadt, N.J., recovery center, which recently installed a T3 line.

The company deployed the Definity Generic 1 PBX at the center in December. The Definity Generic 1 — an ISDN-compatible upgrade to the System 75 PBX — is connected to an AT&T 4ESS switch at the long-distance carrier's point of presence in Oakland, Calif.

Real money saved

Network reconfiguration using ISDN is where "the real money can be saved," said Thomas Nolle, president of CIMI Corp. in Haddonfield, N.J.

Calling the Comdisco deployment "a good case study for disaster recovery providers and users interested in doing their own disaster recovery management," Nolle said a basic advantage of PRI is that it increases the speed of network reconfiguration. "There are a number of ways to perform the same thing, but the problem is high investment and slower reaction time," he said.

He also noted that a customer-controlled recovery service available from a local central office can take between a half-hour and a day to kick in. "A PRI-based application could do it in a matter of seconds," Nolle said.

In addition, he said, a properly configured application could use the automatic number identification feature to reestablish calls that were dropped during the network outage.

Unlike other publicized users of AT&T's PRI, Comdisco is not using ISDN's automatic number identification feature. A potential boon to telemarketers, this feature forwards the calling party's telephone number to the called party.

BIT BLAST

OSI test system planned

The Corporation for Open Systems (COS) has tapped U.K.-based The Networking Centre (TNC) to develop a medium access control-level Open Systems Interconnect (OSI) test system. TNC will develop the hardware test engine while COS creates software around a Sun Microsystems, Inc. workstation. It serves as the driver for the test engine, test tools and test cases. Slated to ship by year's end, the system initially will test IEEE 802.3 products.

Techgnosis, Inc. said it will supply its Sequelink SQL technology and software to Alisa Systems, Inc.'s Apple Computer, Inc. Macintosh-to-Digital Equipment Corp. VAX link. Sequelink reportedly provides Mac users with transparent access to SQL databases in DEC VAX/VMS environments.

Synoptics Communications, Inc. and Retix Corp. have signed a long-term product and technology pact. This will allow Synoptics to support data exchange between its Lattisnet Network Management system and other OSI-based network management packages.

Users of [illegible] Corp.'s Payfax communications centers will soon be able to access Dialcom, Inc. electronic mailboxes. Business Systems Resources (BSR) is developing an application under DEC's Computer Integrated Telephony (CIT) program, which integrates voice and data into a single application. A forthcoming CIT-based module will add an integrated telemarketing component to BSR's existing Advance Phonathon package.

Nixdorf Computer Corp. and On Technology are the latest vendors to license Apollo Computer, Inc.'s Network Computing System for possible incorporation into their own product offerings.

Cisco Systems, Inc., a supplier of internetwork routers, said it now supports Apple's Appletalk network protocol. Beginning this month, all Cisco routers will offer Appletalk running concurrently with other protocols at no extra charge. Routers can isolate subnets of Macintoshes to protect against noise or to overcome Appletalk's inherent limitation of 254 nodes per Ethernet, the vendor said.

AT&T to unwrap EDI network interface specs

BY PATRICIA KEEFE
CW STAFF

NEW ORLEANS — AT&T recently announced plans to make the network interface specifications for AT&T EDI, an electronic data interchange (EDI) service introduced last October, available for integration with selected vendors' EDI translation packages.

Unveiled at the ANSI X12 EDI Conference held here recently, the Vendor Software Interface Program features a formal release control policy that requires vendors to retest their interface after they make software modifications that affect communications with the EDI network.

In addition, AT&T also publicized agreements with several providers of electronic messaging services:

- Telecom Canada will link its Traderoute service to AT&T EDI by offering what is said to be the first North American X.400 standard connection for exchanging EDI documents.
- Martin Marietta will resell AT&T's electronic messaging services, such as AT&T Mail and AT&T EDI.
- ASC Network Systems will co-market its minicomputer-based EDI translation software.
- EDI Education, Inc. will offer a three-day course, "Advanced Topics in EDI," for experienced EDI business managers.

While keynoting the conference, William Ebben, an AT&T group vice-president, urged the industry to work with national standards organizations to help bolster EDI as a way to increase productivity, competitiveness and quality within U.S. corporations.

"We have improved our overall operating efficiency and significantly reduced our costs," Ebben said, citing A&T's use of EDI.

EDI provides computer-to-computer exchange of business documents using standardized formats between two or more trading partners.

A way of life

At AT&T, EDI is becoming a way of life in the purchasing, finance and manufacturing operations. For example, Ebben said, AT&T's factories are moving to just-in-time shipment of materials for manufacture. EDI plays a key role in facilitating the close communications required in order to pull off this type of manufacturing.

Much as IBM has done with its Information Network, AT&T has stepped up its EDI implementation process by combining its commercial EDI network service and co-marketed software to provide suppliers with a personal computer-based package for interfacing to AT&T's EDI. AT&T can now get trading partners up and running on its EDI network in two to three weeks instead of two to three months.

Backbone

FROM PAGE 55

vices have been stymied. "We have sites with multiple, point-to-point 56K bit/sec. Dataphone Digital Service connections, which are likely candidates" for the service, said Gary Weis, senior vice-president of Sears Technology Services, Inc. "Whether we'll do it will be driven by the economics of carriers' future offerings."

Hybrid networking may prove to be the most fruitful — as well as the most risky — area that NET is entering, according to Vertical Systems. The vendor took the plunge by announcing an agreement to integrate its customer premises equipment with Tellabs, Inc.'s equipment for carriers' central offices. Users will increasingly demand intelligent networking solutions that combine private and carrier-based networking, according to Vertical Systems principal Richard Malone. They will also ask carriers to manage their networks for them — even if some segment of those networks are private switches, he added.

Companies such as NET, by integrating their systems with dominant central office equipment vendors, will be in a good position to sell to this market, Malone added. NET has obtained a license to develop a customer premises version of Tellabs' Titan product, which interfaces multiple T1 links with a T3 channel, Forkish said. The resulting system could be installed on the customer or carrier site.

NET's expert service

NET also made its first major thrust into the network management services arena by announcing Expert Fault Management Service. Available through NET Technical Assistance Centers, the expert systems-based service is said to detect, diagnose and recommend solutions for network faults on IDNX systems, carrier-based networks and channel service units. Users can access information about their networks' operations through an NET Series 5000 Network Management System, which runs on a Sun Microsystems, Inc. workstation.

Jack Heinsohn, director of telecommunications for the State of New York, an NET user, liked the idea of an expert system that could "allow for faster, automatic response" when, for example, a threshold is exceeded or a fault found on the network.

However, NET's Expert Fault Management System is not designed to respond immediately to a network problem — intelligence embedded in IDNX does that, NET spokeswoman Sheila Sandow said. Instead, the new system suggests ways to fix the problem, which frequently requires manual intervention. Providing such expertise "is [NET's] responsibility, not ours," Heinsohn said.

Nolle

CONTINUED FROM PAGE 55

rival Sun Microsystems also has RPC support, and AT&T has announced that it will provide RPC capability as a part of its Application Operating Environment (AOE). Several standards bodies are also considering RPC.

Though all the definitions of RPC differ in implementation, they offer almost exactly the same user functionality. Changes in the protocols used to link the RPC caller with the RPC server would not seriously affect application design.

That immunity from low-level considerations is helpful, considering the current Unix wars. The Open Software Foundation (OSF) was formed to counter what was perceived as a gradual closing of the Unix standard by licenser AT&T and its partner Sun, which together have perhaps the largest Unix installed base. OSF's version of Unix is based around AIX, IBM's Unix implementation. The organization includes the companies participating in the Uniforum demonstration, all of which have licensed Apollo's NCS/RPC environment. This suggests that IBM, with its AIX product at least, may support RPC distribution of applications.

Finally, RPC also has technical disadvantages. The transparent distribution mechanism it offers can result in significant performance problems if care is not taken in selecting just what procedures will be run remotely.

Remote procedure execution, like file server operation on a personal computer, can also degrade the performance of local applications, requiring some mechanism for allocating system resources.

These problems are most significant where the performance of the network linking caller and server is limited, which is why RPCs are most popular on high-data-rate local-area networks.

Despite these problems, RPC concepts will probably play a role in the development of future distributed applications. The benefits of isolating programmers entirely from distributed communications problems are clear, given that the industry has yet to agree on just what protocols should be used for these applications. Standards at the lower levels of RPC design will certainly be needed eventually, but there are RPC systems available today. And where else can a user find ready tools for distributed processing?

Nolle is president of CIMI Corp., a communications consulting company based in Haddonfield, N.J.

Retailers' service

CONTINUED FROM PAGE 55

out rote duties to Businessland, while others rely on the company to support more critical aspects of the network, said Chuck Stegman, marketing manager of Advanced Systems.

- **Businessland Connectivity Guide.** This guide contains product evaluations and examines the trade-offs and options of different products.

John Anker, a personal computer LAN consultant at Norwest's Technical Services group, was particularly pleased with Businessland's multivendor approach. "To find a local and national reseller that really appeared to be expert in integration was quite a find," Anker said.

Businessland's wide product line was also a plus. "They didn't push us toward any one vendor; they allowed us to make up our own minds," he added. Norwest's 630-node network has 36 servers and links two buildings a mile apart.

Selective shopper

At Pepsico,. Businessland was selected over other LAN suppliers because it offered one-stop shopping and integrated support, MIS Manager Stan Kolankowski said. His four-month-old "mixed-bag" LAN supports 32 users on a server.

Businessland supports all aspects of the LAN. "We insisted on their taking full responsibility for the network, and we've been very happy," Kolankowski said. Pepsico is on the Gold Plan.

Flexibility and accommodation are the attributes cited by a Norwest user with a couple of years of experience with the Gold Plan. "We do a good portion of the support, but in situations where we don't have full expertise, we call on them to fill the hole," the user said.

AT&T announces digital discount

AT&T recently unleashed another major discount plan to protect its digital services' market share from encroachments by MCI Communications Corp. and U.S. Sprint Communications Co.

AT&T's Multi-Service Volume Pricing plan offers discounts of up to 40% for AT&T's Dataphone Digital Service, Accunet T1.5 Service and Accunet T45 Service. Customers qualify for the plan by committing to a volume of $25,000 per month for the three offerings.

AT&T also officially announced Service Node Controller, a service that is said to allow customers to save as much as 40% on local-access costs for their Electronic Tandem Networks (ETN). The controller lets AT&T route calls among private branch exchange (PBX) systems on an ETN, ending the need to route all calls through the Tandem PBX.

NEW PRODUCTS

Local-area networking software

Hewlett-Packard Co. has announced an accelerated X Window System display server designed to provide personal computers with network access to AT&T Unix System V-based X Window System graphics applications.

The HP AXDS/PC software works in conjunction with the company's intelligent graphics controller to give HP Vectra PC users network access to both X Window applications and MS-DOS office automation applications, the vendor said. The product requires 640K bytes of random-access memory and a high-resolution color monitor. The software is priced at $500 and is expected to be available in the second quarter.

HP
19310 Pruneridge Ave.
Cupertino, Calif. 95014
800-752-0900

Hewlett-Packard's *Unix-based X Window display server*

Asksam Systems has announced a network version of its text-based information manager package for IBM Personal Computers and compatibles.

Asksam Version 4N reportedly runs on Token-Ring and Banyan Systems, Inc.'s Virtual Networking Software as well as 3Com Corp. and Novell, Inc. networking environments.

The product costs $895 for 10 terminals running off one file server.

Asksam Systems
P.O. Box 1428
Perry, Fla. 32347
800-327-5726

OAZ Communications, Inc. has announced an advanced version of its Netfax Manager.

The product reportedly combines software and a facsimile board and can be used in any personal computer-based local-area network. The Netfax Manager operates in a host PC using the Novell, Inc. message-handling service and is capable of sending data to as many as 100 PC-based LAN terminals, according to the vendor. It can send messages up to approximately 250 pages per document file. It is priced at $1,900.

OAZ Communications
1362 Bordeaux Drive
Sunnyvale, Calif. 94089
408-745-1806

A cluster controller emulator that extends midrange processing to a variety of IBM Personal Computers and Personal System/2s through one port is currently available from Techland Bluelynx, the company said.

The Bluelynx/5250-Extend emulator uses inexpensive asynchronous connections, and each port can be configured and operated independently of the others, according to the company. As many as nine nodes can reportedly be configured for remote communications functions.

Prebundled kits, including servers and asynchronous nodes, range from $1,095 to $1,895. Individual nodes can be purchased for $195 each.

Techland Bluelynx
63 Maple St.
Friendsville, Md. 21531
800-823-4526

Network management

A software system designed to ease and expedite the process of implementing a network management system has been announced by The Info Group, Inc.

Known as Auto-Load, the product reportedly takes data that is specific to customers and automatically loads it into the company's ATMS network management system.

According to the vendor, the program utilizes a fourth-generation language to consolidate various IBM and VAX file structures.

Auto-Load is compatible with all ATMS systems, including the IBM Personal Computer, Digital Equipment Corp.'s VAX and mainframe versions. Pricing for the system starts at $2,500, the vendor said.

The Info Group
46 Park St.
Framingham, Mass. 01701
508-872-8383

IBM recently unwrapped two voice management products.

Netview Network Call Accounting is software for the IBM 370 said to process call detail records from multiple private branch exchange switches for accounting purposes. Priced at $90,000, the system receives data from IBM's Call Collector III.

Netview Voice Network Design is a PC-DOS or OS/2-based package said to analyze the cost-effectiveness of transmission facilities using call detail records and tariff information that will be updated by IBM four times per year. The package costs $35,000. Both products started shipping March 31.

IBM
Old Orchard Road
Armonk, N.Y. 10504
914-765-1900

The Aries Group MPSG has introduced microcomputer-based software developed to aid MIS and telecommunications executives in multinational network planning and pricing activities.

The INP Service will provide international pricing capability from country to country using cable and satellite services from AT&T, British Telecomm International and a variety of other sources, according to the vendor. Countries from Europe, North and South America, Africa and Asia will reportedly be included in the database, and selected profiles of vendors and countries will supply information on network service providers.

The initial software purchase price is $12,200, and one semiannual update costs $7,000.

The Aries Group
Suite 300
1350 Piccard Drive
Rockville, Md. 20850
301-840-0800

Modems/Multiplexers

Micom Communications Corp. announced the Fast Statistical multiplexer, also known as Faststat, a product designed to reduce bandwidth requirements.

The Faststat software package is said to provide much higher throughput for the vendor's Micom Box line of multiplexers. The technology resembles fast-packet technology in that it packetizes both voice and data and minimizes the need for intelligent handling of packets by intermediate nodes, according to Micom Vice-President Michael Vonarx. The product also provides data compression for 1.8 times as much throughput over a given bandwidth, he added. However, unlike fast-packet technology, Faststat works over 64K bit/sec. lines rather than T1 links. The product is allows users to combine 9.6K bit/sec. voice links with multiple 9.6K bit/sec. data channels over switched 56K bit/sec. links, which are becoming available from an increasing number of local carriers, Vonarx said. Support of fractional T1 rates, such as 256K and 512K bit/sec., is planned, be added.

A Featurepak cartridge product is available to work in conjunction with the Micom Box series and to provide support for synchronous and low bit-rate voice capabilities, the company said.

Offering support for 16 asynchronous channels to 32 asynchronous/synchronous channels, the multiplexer and Featurepak software combination ranges from $2,040 to $7,870.

Micom Communications
4100 Los Angeles Ave.
Simi Valley, Calif. 93063
805-583-8600

A family of 2,400 bit/sec. modems for IBM Personal Computers and Personal System/2s has been announced by Racal-Vadic, Inc.

The internal modems are reportedly Hayes Microcomputer Products, Inc.-compatible and are suited for most personal computing applications, including file transfer between offices and electronic mail. The units are priced at $395.

Racal-Vadic
1525 McCarthy Blvd.
Milpitas, Calif. 95035
408-432-8008

Universal Data Systems has announced its Build-a-Mux modular multiplexer series.

The product line reportedly allows users to intermix various configurations of statistical and time-division multiplexers in the company's 8-slot Desktop Data Shelf or 16-slot Universal Data Shelf. The series is set for availability in the second quarter. A fully configured 32-channel version will cost approximately $200 per channel, the vendor said.

Universal Data Systems
5000 Bradford Drive
Huntsville, Ala. 35805
205-721-8000

Electronic data interchange

GE Information Services has announced that its Design Express System family of electronic data interchange products is now available in the U.S.

The system allows electronic processing and transmission of engineering and manufacturing product definition data to he exchanged among trading partners around the world, the vendor said.

The series consists of the Design Express System, a central network system that accepts different document formats and can he accessed by either a mainframe or microcomputer; the Design PC System, an integrated micro workstation for both synchronous and asynchronous communications; and the Design Display System, a microcomputer numerical control-part programming workstation.

The Design Express System is transaction-priced based on a commitment level, document processing and a send-and-receive charge.

Workstation software is priced from $1,000 to $5,500.

GE Information Services
401 N. Washington St.
Rockville, Md. 20850
301-340-4494

MANAGER'S JOURNAL

EXECUTIVE TRACK

William K. Elwood has been named vice-president of MIS at Tonka Corp. in Minnetonka, Minn.

In the newly created position, Elwood will oversee information systems operations at the company's four divisions: Kenner Products, Parker Brothers, Tonka International and Tonka Products. Tonka is the third-largest U.S. toy company.

Elwood, 47, was most recently vice-president of National Convenience Stores. His previous positions include vice-president of MIS at T. G. & Y. Stores and director of MIS at Target Stores.

He holds a master's degree in business administration from the University of Minnesota.

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G. Scott Newkirk has been promoted to director of computer operations at **Fugleberg Koch Architects** in Winter Park, Fla.

Newkirk is responsible for a network of computer-aided design and word processing workstations in Fugleberg Koch's offices in Winter Park, Melbourne, Fla., and Dallas. Before joining Fugleberg Koch as a project architect in 1988, Newkirk held a variety of architecture and computer management positions at architecture firms in Florida and Kansas.

Newkirk holds bachelor's and master's degrees from Kansas State University and lives in Orlando, Fla.

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Who's on the go?

Changing jobs? Promoting an assistant? Your peers want to know who is coming and going, and *Computerworld* wants to help by mentioning any job changes in Executive Track. When you have news about staff changes, be sure to drop a note and photo or have your public relations department write to Clinton Wilder, Senior Editor-Management, *Computerworld*, Box 9171, 375 Cochituate Road, Framingham, Mass. 01701-9171.

'A fixer of tough problems'

Mending bridges between distillery, IS functions was first on the agenda

BY MICHAEL ALEXANDER
CW STAFF

PROFILE: Keith Wilson

[illegible] BLACK STAR

***Position:** Director of MIS, Glenmore Distilleries Co.*

***Mission:** To make MIS a key strategic partner of management in a shrinking marketplace*

It's about six blocks between Glenmore Distilleries Co.'s MIS department and its headquarters in downtown Louisville, Ky., but the distance between the two sites is far greater.

"We don't need to close the physical gap," says Keith Wilson, director of MIS at Glenmore. "It's the psychological distance that must be overcome."

The relationship between Glenmore's MIS and the departments it serves has been more adversarial than cooperative in recent years. MIS has perceived that senior management was unwilling to fully appreciate its contributions or help support a strategy that would make MIS an integral partner within the company.

The company's senior managers, in turn, believed that MIS was not carrying through on its mission to provide the information services and support that were needed in what had become an extremely competitive business.

It was into this combative atmosphere that Wilson stepped late last year when he assumed the leadership responsibility of the MIS shop at Glenmore. Previously, Wilson headed the MIS department at Vermont American Corp., a Louisville-based manufacturer of tools and other hardware.

"Management has had a sour taste in its mouth toward MIS, but I think it's justified," Wilson says. "There was no applications backlog because too much of the work was being filtered, for example. When that happens, the users stop coming to MIS."

Wilson's background also includes stints in engineering at IBM and in finance at General Electric Co. He also holds an MBA from the University of Mississippi, where he says he earned a reputation as a "fixer of tough problems." He says this background will serve him well as he takes on what may

Continued on page 68

Mixed feelings for Aetna's info pioneer

BY CLINTON WILDER
CW STAFF

A lot of changes have occurred in the information systems world since Irwin J. Sitkin began sorting and tabulating punch cards at Aetna Life & Casualty Co. in 1954. On June 30, one more major change will occur at Hartford, Conn.-based Aetna when Sitkin, one of the IS profession's most visible and outspoken executives, officially retires at age 59.

Sitkin's decision, which had been planned for some time, was announced earlier this year [CW, March 13]. In some ways he can't wait, but in other ways there are second thoughts.

"There has to be some ambivalence," Sitkin said in a recent interview. "You can't walk away from a job that's been like a marriage without feeling that you could have done more. But it's time."

Sitkin's replacement, former Capital Holding Corp. top IS executive John D. Loewenberg, came on board March 13.

"It's interesting that we couldn't find someone inside, but John has the tools and capabilities," Sitkin said. "We have a guy there who's big enough to step in."

Sitkin added administration to his IS responsibilities in 1983, when he became senior vice-president of corporate administration, an unusual move at the time for a career IS professional. Ironically, his job has now been split, with Loewenberg taking over centralized IS functions of corporate technology planning, technology services and applications systems services.

Aetna's Sitkin

"IS is now in an even stronger limelight to pressure the operating divisions to exploit the technology even more," Sitkin said.

Sitkin will remain as an Aetna consultant for an unspecified period. He said he hopes to work 40 to 50 days a year, allowing time for reading, golf and travel. He will soon lead a delegation of U.S. computer executives to mainland China for the second time. Sitkin will remain on the boards of his local hospital and YMCA and the Boston-based Computer Museum.

"My head's on straight," he said. "I'm looking forward to doing some other things."

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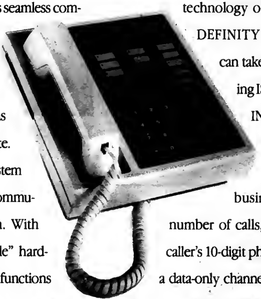

Imagine a communications system designed to expand right along with your business, no matter how large you grow or how complex you get. One that offers seamless communication from 40 to 30,000 lines and beyond. And allows you to add lines economically.

Imagine a communications system that may never be obsolete.

The DEFINITY™ 75/85 system is simply the most advanced communications system you can own. With AT&T's new "universal module" hardware, the first module you buy functions as the system's base. After that, adding lines is simply a matter of adding modules.

AT&T's new high-density circuit packs allow you to add more phones and computers to your system, while requiring less power and less space.

The communication system of the future is fully compatible with the telecommunication technology of the future. With a DEFINITY 75/85 system you can take advantage of emerging ISDN technologies like INformation FOrwarding-2. Especially helpful if your business handles a large number of calls, INFO-2 transmits a caller's 10-digit phone number through a data-only channel to your mainframe. The system allows you to retrieve, then display that caller's history on your screen as you pick up the phone.

Of course, DEFINITY 75/85 systems support the features that have always made

TAKING CHARGE

Robert Zawacki

On being an eagle scout

I recently addressed the Conference Board on Information Management in New York and summarized 13 years of research on selecting and keeping "eagles" in information system organizations.

I define an eagle as a good matchup between the individual contributor and the job. All of the questions from the audience after the talk could be classified into one of two major headings:

- What will be the skill sets or competencies of the 1990s?
- If systems people will help transform the organizations of the '90s, where should we go to get people with change-agent skills?

To understand the competencies of an effective systems person of the '90s, it may be helpful to divide the information systems organization into the following groupings: the core technology, the mediating technology and the interfacing technology.

Supertechies

The core technology consists of those people who are absolutely essential to keeping the hardware and software on the cutting edge. They are your supertechies.

The mediating technology are people who support the core and interfacing technologies. Examples are such functions as security, administration and clerical, training and human resources. These are generally considered staff functions.

The interfacing technology covers those people who meet with the customer and take the technology to the client but also bring the future needs of the client back to the core technology. Examples of interfacing technologies are information center managers, project leaders, business analysts and network specialists.

Our educational systems tend to draw into the IS majors people who have a high need to achieve and tend to enjoy interaction with things rather than with people. People who have these extreme personality characteristics tend to do well as MIS majors in college. Combined with this are my findings that IS managers tend to select people based on ability but ignore motivation and matching of the person and the job. Further, IS managers tend to form their opinions very early in the interview and, therefore, their predictions are very poor.

With that background, I can attempt to answer the two general questions above. First, for the '90s we must select people who are a good matchup with the type of job and technology. In the core technology, we will continue to hire from the best colleges computer science graduates who are high achievers because they will keep us on the edge of the technology.

However, we will hire fewer of these people because much of the computing power is being transferred to the customer, although there will always be a need for standardized systems in large international companies.

The key technology of the '90s will be with the interfacing people. Not only will these people continue to be high achievers, but they will also be change agents. Because of this new mix of competencies, I recommend that we hire people for the interfacing jobs with high need for achievement and high social need.

The problem is that our IS programs are producing graduates with unique personality variables that no longer fit the needs of progressive IS organizations. I recommend that IS organizations select general business majors, marketing majors, finance majors and personnel management majors with good computer skills and place them in the interfacing jobs.

These business school graduates tend to have high growth needs and a high need for social interaction. Most good business school graduates now possess good computer skills and have better change skills that include a good understanding of conflict resolution, group dynamics, negotiation and marketing skills.

Effective change

This system will bring to the IS organization people with the ability to implement effective change. But the IS organization must put these people in an intensive technical training program and teach them the unique technical aspects of their systems.

As we shift people from the core technology to the interfacing technology, we must change our paradigm for selecting eagles. We must include questions that get at and help IS organizations evaluate the social and change skills of the eagle of the '90s. In the '90s, the interfacing technology will be the change agents that transform organizations. It is absolutely critical that we select people who have the behavioral skills to implement effective change.

Zawacki is professor of management at the University of Colorado, Colorado Springs.

The fleeting competitive edge

BY JEAN S. BOZMAN
CW STAFF

NAPA, Calif. — A strategic system does not a competitive advantage make.

That was the message transmitted to more than 100 of the nation's top information systems executives at a three-day conference here earlier this month sponsored by the Society for Information Management (SIM). However, the strategic system can be viewed as a lever that enables its corporation to compete in today's global markets.

Michael Scott Morton, a professor of management at MIT's Sloan School of Management, told the SIM crowd that strategic systems do not give the corporation that designed them any long-term advantage. "We've done a study that shows that those strategic systems are necessary for survival," Morton said. "We believe that IS alone does not give a company a sustainable competitive advantage."

Citing American Airlines' industry-leading Sabre reservations system, Morton noted the close competition made by United Airlines' Covia system and the potential competition of rival systems currently being designed. The true Sabre advantage, Morton believes, lies in the $750 million in profit generated by what otherwise would be another piece of American Airlines' IS infrastructure. Another — and perhaps unintended — advantage is the reduction in the cost of end-user services, Morton said.

Heschel tells *a tale of Baxter's rocky road*

Maintaining a strategic system through a corporate merger was another issue discussed at the SIM conference. One case in point is Baxter Healthcare Corp.'s hospital-supplies on-line ordering system, originally built by American Hospital Supply Corp. before its merger with Baxter in 1985.

Michael Heschel, corporate vice-president of information resources at Baxter, detailed the steps he took to implement the system and to convert it to Baxter's IBM architecture.

"This merger was just about as turbulent as anything we're going to see in the 1990s," Heschel told the SIM group. "I have been going through this for four years, and it still isn't over."

While overseeing the conversion of the hospital-ordering system from Burroughs Corp. to IBM mainframes, Heschel had to merge the IS organizations from the $4 billion American Hospital and the $6.5 billion Baxter. Together, the companies had a combined staff of 1,400 and a combined budget of $160 million. But senior executives were looking for economies of scale to emerge right away along with reductions in the IS staff.

"At first, executives were asking me why we couldn't reduce our staff by 30%," Heschel recalled. "And my answer was we have to keep our systems running even while we're adding new ones."

Heschel said that he employed visual aids such as color graphics to show senior management that the merger was reducing the cost per transaction, although it wasn't decreasing the overall IS budget. Meanwhile, the two sides of Baxter's house — Burroughs and IBM — were merged to give "a single, Baxter image for our customers," Heschel said.

Managers can learn from NYU tech classes

BY ALAN J. RYAN
CW STAFF

NEW YORK — Managers who squirm in their seats when the words "information technology" are uttered might be wise to familiarize themselves with the age of technology, says a New York University academician.

Whether the managers are responsible for planning, implementing, supervising or simply using data processing, telecommunications or office automation systems, "those who don't master technology risk becoming victims of that technology," said Richard Vigilante, director of the Information Technologies Institute at the university's school of continuing education.

The university is attempting to address the need for nontechnical managers to understand information systems by launching a noncredit program in information technology for general business managers.

During the past decade, one million corporate managerial and staff positions have been eliminated because of downsizing due to automation economies and organizational changes that have diminished the traditional managerial role as an intermediary for information access and interpretation, Vigilante said.

By 1990, 65% of all systems developed in organizations will be developed by end users employing productivity packages such as fourth-generation languages and personal computer tools, Vigilante said. In addition, 50% of all managers and administrators will be using computers directly in their jobs by 1990, he said: "It will be part and parcel of their own process of control, coordination and planning."

The trend, Vigilante said, makes clear that managers who wish to maintain their positions or advance in their careers need to have a thorough knowledge of computerized information systems.

For its part, the university has instituted a program offering executive certificates for nontechnical managers and professionals in information management, database management and telecommunications management. The classes will reportedly provide managers and professionals in any field with the background and expertise to act rather than react to their organizations' growing information needs.

There are millions of people who know how to use terminals or PCs and certain software packages, Vigilante said: "We are looking for systems literacy. We are looking to the interconnection of software, hardware, data, people and organizational structures."

The programs will help prepare nontechnical managers to analyze information needs, communicate the needs to both executives and technicians and manage the planning and development of data processing, office automation and telecommunications sytems.

> "THOSE WHO DON'T master technology risk becoming victims of that technology."
>
> RICHARD VIGILANTE
> INFORMATION TECHNOLOGIES INSTITUTE

Title search service puts attorneys on-line

BY CLINTON WILDER
CW STAFF

ORLANDO, Fla. — Attorneys' Title Insurance Fund, Inc. has transformed its business with information technology. But it didn't really mean to.

The 40-year-old underwriting firm, known as The Fund, began offering its member attorneys a computerized title search service in Florida's Broward County back in the 1960s. That business kept growing, and in 1982, executives noticed that revenue from on-line title searches had surpassed revenue from title insurance. The gap has grown since then. "We snuck into the information business without realizing it," said Turner Coad, The Fund's senior vice-president and director of the operation services division.

STRATEGIC SYSTEMS

The property title database, the Attorneys' Title Information Display System (ATIDS), allows attorneys to perform on-line title searches in their offices instead of sorting through county courthouse records. The Fund now offers the service for property in 26 Florida counties, including most of the state's fast-growing coastal areas, and is considering out-of-state expansion. About 1,000 Fund member attorneys use the system, and it accounted for nearly 60% of The Fund's $47 million in revenue last year.

The Fund's information service business has continued to grow, while title insurance fees have followed the roller-coaster trends of the Florida real estate market. "Only two title insurance underwriters made a profit in Florida in 1988," Coad said, "and we were one of them."

As with so many other strategic systems, it is the information being delivered — not the ATIDS technology — that is leading-edge. The Fund's base CPU is a National Advanced Systems 90/60 still running DOS/VSE and the IBM IMS database. Personal computers running PC- or MS-DOS at The Fund's 16 branch offices access the title data over dial-up lines. The Fund will migrate to MVS and a relational database in the next two years but has held off as long as possible to hold costs down.

"You don't have to be first on the block with new technology," said Joe Kolman, vice-president of information systems. "You fit the tools you have to the business objectives."

Not surprisingly, close coordination between IS and the business is the rule at The Fund; Coad, in fact, has a technology background and was formerly The Fund's vice-president of IS. "Our philosophy," Kolman said, "is that programmers have to show why we can't do something the users want rather than users having to show us why we should."

Coad: *Data service keeps The Fund profitable*

Marketing has played a big role in the success of ATIDS since 1982, when a new Fund management team from the banking industry decided to advertise the service. Like American Airlines, McKesson Corp. and other strategic systems practitioners, The Fund gives information users incentives to use its core business.

For non-Fund members, for example, an ATIDS search transaction costs $50 if the title will be underwritten by The Fund and $95 if it will not. An attorney using ATIDS will receive 70% of the underwriting fee for a Fund policy; the normal split is 60-40. "We try to capture [the attorneys] and keep them dependent on us," Kolman said.

In addition to possible expansion outside Florida, Coad sees vast new potential markets for ATIDS beyond the legal profession — demographers, appraisers, builders, the Internal Revenue Service (which is already a user) — even local Welcome Wagons. "There is no single repository of this data anywhere else," Coad said. "The potential is unbelievable."

The Fund exemplifies the growing trend of firms discovering through the use of IS that they are in the information business. "Every business has an information dimension in it," said William H. Davidson, a business professor at the University of Southern California.

CALENDAR

Decentralization vs. centralization, pacing your information systems portfolio and measuring the return on IS investments will be some of the areas addressed at "*Computerworld* Perspectives 1989," a conference for senior corporate users and consumers of technology. The conference, sponsored by CW, will be held June 20-21 in New York. Featured keynote speakers are Michael Hammer at The Hammer Group, Shoshana Zuboff at Harvard Business School and Donald Burr, founder and chief executive officer of People Express Airlines. For more information, contact Leslie Price, CSC, 5 Speen St., Framingham, Mass., 01701.

APRIL 30 MAY 6

CHI '89 Conference on Human Factors in Computing Systems. Austin, Texas, April 30-May 4 — Contact: CHI '89, Executive Administrator, Charlie Rams, P.O. Box 300195, Austin, Texas 78720.

Communications Association Conference and Exposition International. Dallas, April 30-May 5 — Contact: International Communications Association, Suite 710, 12750 Merit Drive, LB-89, Dallas, Texas 75251.

International Conference on Supercomputing and Third World Supercomputer Exhibition. Santa Clara, Calif. April 30-May 5 — Contact: International Supercomputing Institute, Suite B309, 3000 34th St. South, St. Petersburg, Fla. 33711.

Internet Requirements Seminar. Monterey, Calif., May 1-2 — Contact: Advanced Computing Environments, Suite 100, 480 San Antonio Road, Mountain View, Calif. 94040.

Unix Transaction Processing Workshop. Pittsburgh, May 1-2 — Contact: Usenix Conference Office, P.O. Box 385, 14961 Pacific Coast Highway, Sunset Beach, Calif. 90742.

Computer Virus Conference & Exhibition. Chicago, May 1-3 — Contact: Ida [illegible], Computer Security Institute, 360 Church St., Northboro, Mass. 01532.

The Executive Forum on Information Systems Management. New York, May 1-3 — Contact: The American Management Association, 135 West 50th St., New York, N.Y. 10020.

Introduction to Expert Systems. San Francisco, May 1-3 — Contact: Technology Transfer Institute, 741 Tenth St., Santa Monica, Calif. 90402.

MVS/ESA Performance and Service Level Management Seminar. Washington, D.C., May 1-3 — Contact: Technology Transfer Institute, 741 Tenth St., Santa Monica, Calif. 90402.

Teradyne User Group Meeting. Newport, R.I., May 1-4 — Contact: Teradyne, 321 Harrison Avenue, Boston, Mass. 02118.

Hambrecht & Quist Technology Conference. San Francisco, May 1-4 — Contact: Hambrecht & Quist, Research Department, 3rd Floor, One Bush St., San Francisco, Calif. 94104.

4th International ANSYS Conference and Exhibition. Pittsburgh, May 2-4 — Contact: Swanson Analysis Systems, Inc., P.O. Box 65, Johnson Road, Houston, Pa. 15342.

Southern California Regional User Group '89 Technical Conference and Vendor Show for HP 3000 computer users. Pasadena, Calif., May 3-5 — Contact: SCRUG, P.O. Box 84219, Los Angeles, Calif. 90073.

Interactive Videodisc Seminar. Pittsburgh, May 4-5 — Contact: Industrial Training Corp., 13515 Dulles Technology Drive, Herndon, Va. 22071.

Applefest. Boston, May 5-7 — Contact: Cambridge Marketing, One Forbes Road, Lexington, Mass. 02173.

MAY 7 13

Association for Systems Management's Information Systems Conference. Dallas, May 7-10 — Contact: Association for Systems Management, 24587 Bagley Road, Cleveland, Ohio 44138.

Annual Meeting and Conference of the Software Maintenance Association. Atlanta, May 7-10 — Contact: Marimac Corp., 6790 E. Calle Dorado, Tucson, Ariz. 85715.

Computers & Communications in the Health Care Industry. Chicago, May 7-10 — Contact: Frost & Sullivan, 106 Fulton St., New York, N.Y. 10038.

Air Force Computer Acquisition Conference. Burlington, Mass., May 8-9 — Contact: Computer Acquisition Conference, P.O. Box 11, Bedford, Mass. 01730.

Eastern Communications Forum. Washington, D.C., May 8-10 — Contact: Professional Educational International, Suite 740, 303 E. Wacker Drive, Chicago, Ill. 60601.

Executive Information Systems seminar. San Francisco, May 8-10 — Contact: Technology Transfer Institute, 741 Tenth Street, Santa Monica, Calif. 90402.

Hi-Tech Acquisition Symposium '89. Orlando, Fla., May 8-10 — Contact: ICN, Suite 200, 400 N. New York Ave., Winter Park, Fla. 32789.

Long Range Information Systems Planning. Orlando, Fla., May 9-10 — Contact: American Management Association, 135 W. 50th St., New York, N.Y. 10020.

DECUS. Atlanta, May 9-12 — Contact: Digital Equipment Computer Users Society, 219 Boston Post Road (BP02), Marlboro, Mass. 01752.

Dexpo South '89. Atlanta, May 9-11 — Contact: Expoconsul International, 3 Independence Way, Princeton, N.J. 08540.

National Financial Computer and Automation Conference. New York, May 9-11 — Contact: National Fincom, P.O. Box 1151, Englewood Cliffs, N.J. 07632.

Automated Mission Planning Symposium and Exhibition. Cape May, N.J., May 9-11 — Contact: Aerospace Education Foundation of New Jersey, P.O. Box 95, Palmyra, N.J. 08065.

Dexpo South 89. Atlanta, May 9-11, Contact: Expoconsul International, Inc., 3 Independence Way, Princeton, N.J. 08540.

Fourth International Optical Storage Forum. San Jose, Calif., May 9-11 — Contact: Cartlidge & Associates, Inc., Suite 302, 3097 Moorpark Ave., San Jose, Calif. 95128.

ID Expo Conference and Exposition of Automatic Identification and Keyless Data Entry. Los Angeles, May 9-11 — Contact: Expocon Management Associates, Inc., Seven Cambridge Drive, Trumbull, Conn. 06611.

Independent AS/400 Conference. Toronto, May 8 — Contact: Diane Fiche, International Data Corp., Suite 1000, 7 King St., Toronto, Ontario, M5C 1A2.

Wilson

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be his toughest challenge yet.

"I am more of a businessman than an MIS director," he says. "I can identify with any level of the company, and I think it is important that I avoid being the MIS technical stereotype."

Wilson's immediate concern is to strengthen rapport between MIS and management. "I plan to be a salesman for the MIS role in the company and to change that role to one that is more of a leader," he says.

Within weeks of assuming his responsibilities as Glenmore's top MIS executive, the firm moved to acquire Fleischmann Malting Co., a rival distiller based in Minneapolis. The acquisition project and MIS' quick and astute consolidation of the two firms' MIS capabilities did much to raise the stature of the department, says Steve Stevens, director of systems and development at Glenmore.

> "I PLAN TO BE a salesman for the MIS role in the company and to change that role to one that is more of a leader."
>
> KEITH WILSON
> GLENMORE DISTILLERIES

"Before that, there was almost no contact between MIS and management, but the project increased both communication and contact," he says.

The MIS department recently completed a project that enables Glenmore's brand managers to download marketing data from its mainframe to personal computers for more rapid trade analysis and to speed the creation of sales reports. The success of the project will undoubtedly encourage other users in the company to return to MIS, Stevens says.

Despite the recent MIS successes, management is not yet an enthusiastic booster of information systems technology, Wilson says. The firm has only about a dozen PCs, for example — not many in a company of more than 400 employees, half of whom are white-collar workers.

Wilson says he hopes a recent reorganization of the MIS department he directed will give it greater flexibility to develop other systems for the company.

"Before, we tended to be an operation-oriented shop. Now we're an end-user shop," Wilson says. "We're operating with the same-size budget as last year, but we have been able to increase manpower and redefine how we acquire services and hardware."

What IS puts together, business deals can sunder

BY JANET FIDERIO

For the first year after the September 1985 merger of R. J. Reynolds, Inc. and Nabisco, Inc., nothing much happened. Then the changes started. At R. J. Reynolds' RJR Tobacco International subsidiary, Bill Ledford, director of financial reporting systems, found that his monthly financial reporting responsibilities were about to increase fourfold because of additional reporting requirements.

Some of the new data required was standard profit-and-loss, balance sheet information, but some of it was data that had not been collected before. "We went through a massive drill to figure out what we had to do," says Ledford, who helps Tobacco International in Winston-Salem, N.C., keep track of worldwide sales. "We sent teams all over the world to explain to people out in the field what we now needed."

Because the existing systems were incapable of supporting the new financial directives, Ledford and his staff had no choice but to go on-line quickly with the General Ledger 3.0 software from McCormack & Dodge Corp. that they had been testing. "We received the information on new reporting requirements in mid-December, worked over the Christmas holidays and completed January's reports on the new system," he says.

The speed with which Ledford's team had to react to changing requirements after the merger is not uncommon. Mergers and acquisitions often stress the response capabilities of information systems personnel, requiring them to relocate or consolidate data centers or reconcile system incompatibilities on short notice and under tight deadlines.

Ledford was also lucky in that he and his staff did not face the added worry of layoffs while they were struggling to meet the deadline. R. J. Reynolds' corporate headquarters, however, did have to contend with job losses. In fact, when the decision was made to shift headquarters from Winston-Salem to Atlanta, only 200 out of more than a 1,000 employees were retained.

MANUELLO PAGANELLI/WOODFIN CAMP

R. J. Reynolds' Ledford *coping with big changes on short notice*

Some of the most difficult challenges that IS managers face in the aftermath of a merger or acquisition have nothing to do with technology. Instead, issues of systems overlap and incompatibility often present fewer problems than work force issues.

Reductions in the work force, revised salary structures and new benefits packages are all common features of mergers and acquisitions. Their impact on productivity, morale and rates of attrition can be significant.

"The technology issues are like the technology problems that you face all the time: incompatibilities, things that don't work, things that need to be changed," says Larry DeJarnette, a principal at JIA Management Group, which is a division of A. T. Kerney, Inc., a Santa Monica, Calif.-based consulting firm. The difference, DeJarnette says, is that companies know how to fix their hardware and software, but the people issues are not subject to such tried-and-true methodologies.

Where mergers often denote more of a friendly integration of corporations, an acquisition can be an exercise in humility, according to DeJarnette.

"The folks who are doing the acquiring will not necessarily be superbly sensitive to your needs and requirements," he says. "Acquirers tend to be portfolio management people who aren't always interested in operating a business over the long term."

Their financial motivations, DeJarnette notes, focus on shorter term goals rather than on running the business and making it productive. This kind of attitude, he adds, does not mix well with the task of trying to make significant changes within an IS organization. This "is a slow and tedious process under the best of circumstances," he says, and after an acquisition, an adversarial environment can develop if both corporations are not careful.

DeJarnette speaks from experience. He was the chief IS officer at Lear Siegler in 1979 when it was acquired, taken private and ultimately broken up. A lot of his time during the acquisition, he says, was spent minimizing morale problems by "playing the stiff-upper-lip role."

David Sheppard, executive vice-president at Providence, R.I.-based Fleet/Norstar Services Corp., also reports that the people issues are the most difficult part of a merger.

Sheppard experienced a merger firsthand as the MIS executive at Fleet Information, Inc., a wholly owned data processing subsidiary of Fleet Financial Group, Inc., when Fleet merged with New York-based Norstar Bancorp, Inc.

Because of the merger, Fleet Information was consolidated with Norstar Services, Inc., the DP subsidiary of Norstar. After analyzing the alternatives, Fleet's IS facility in Providence was relocated to Albany, N.Y.

When Fleet merged with Norstar, the company took a number of steps to try to relocate its employees and avoid layoffs. While Sheppard says

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Integration bill shouldn't rival the GNP
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Fiderio is a Gilsum, N.H.-based freelance writer.

Deals

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MIS jobs were lost on the Providence side, jobs opened up on the Albany side. For those who did not want to relocate, the firm attempted to find positions in other Providence-based companies — both inside and outside data processing. Fleet/Norstar also put together severance packages for those employees not interested in the other options, Sheppard says.

"We worked very hard and worried a lot about what was going to happen to the people who were dislocated as a result of this [merger]," he adds.

JIA's DeJarnette

Managers can minimize the anxiety that employees feel, says Vasu Kadambi, director of insurance applications at San Mateo, Calif.-based California Casualty, if they keep the lines of communication open.

According to Kadambi, who was the manager of electronic banking systems at Crocker National Bank in San Francisco when it was acquired by Wells Fargo Bank in 1986, keeping your staff informed will go a long way toward maintaining morale and productivity.

Employees are going to have a lot of questions, he says, and the sooner they are answered, the better it is for morale. Some of the most common questions include, which systems are going to stay? Will the IS group be merged with another group? Is a relocation necessary? Are layoffs necessary? What type of hardware or software adjustments will be required?

Kadambi notes that it is also in the best interest of the new corporation to keep employees feeling secure. "Initially, there was a lot of concern at Crocker because the employees didn't know what to expect," he says.

The acquisition came as a complete surprise; Crocker's parent firm, Midland Bank of England, negotiated directly with Wells Fargo. "The acquiring organization doesn't know much about the new system," Kadambi says. "They have to rely on the employees of the acquired organization to do what is needed."

MIS managers who are about to face a merger or an acquisition can prepare themselves and their staffs by taking a few crucial steps. The first, according to Marvin Meschke, manager of property accounting at Minneapolis-based Pillsbury Corp., is to not panic. "Sit back and find out what the program is," Meschke says. "You can only respond after you know what the ground rules are."

Unfortunately, the ground rules change for every acquisition or merger. Pillsbury was acquired by London-based Grand Metropolitan PLC, which means, among other things, that Pillsbury must now adjust to British accounting styles and regulatory rules.

"I think there's a difference if you're purchased by a foreign company vs. a U.S. company," Meschke says. "If you're bought by a U.S. company, at least you pretty much know all the regulations. In a case like ours, you have to learn how things operate in a different environment."

Flying blind

Even when such complicating factors are not present, IS executives often feel as though they are operating on foreign territory without the benefit of a map. Because MIS is often brought into the process only after the papers are signed, vital background information about the planned systems strategy is often missing.

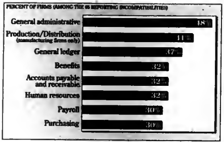
According to Harvey L. Poppel, a partner at Broadview Associates, a merger and acquisition consulting firm based in Fort Lee, N.J., there are a number of things that IS executives should know in this kind of situation but often do not.

For example, it is important to understand whether systems activities were part of the rationale for the merger. It is also crucial to know whether there is an agenda for consolidation. The MIS manager needs to know if he is expected to, as Poppel puts it, "smash things together quickly," or if he can take the time to explore creative opportunities. "It's very important to really understand the mission; in fact, that's the No. 1 activity," he says.

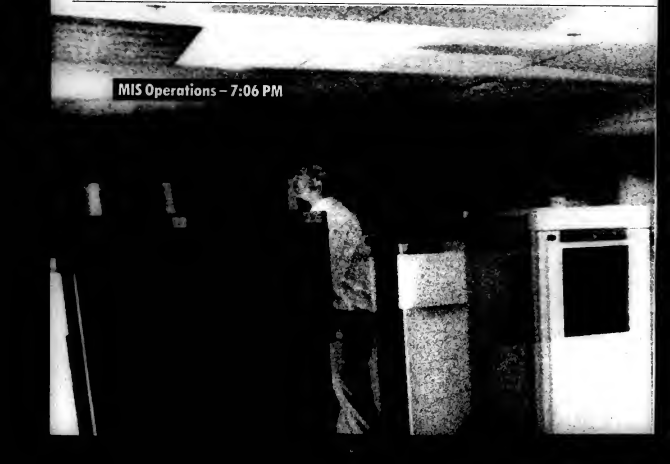
Other critical mission-related facts that IS managers should try to gather include what systems, software and new services the IS organization will be expected to support; whether the new organization will have the money to

The effects of dissonance

Financial and administrative systems account for most of the postmerger problems associated with incompatibilities



SOURCE: AN AMERICAN MANAGEMENT ASSOCIATION/ CONTROL DATA BUSINESS MANAGEMENT SERVICES SURVEY OF 109 FIRMS
CW CHART: FRANK C. O'CONNELL



support current development projects; whether it realizes the costs involved in integrating two shops, if that is the course the new organization intends to pursue; and whether capacity planning has been done to determine if existing systems can support planned activities.

Such information will not always be forthcoming. This is because business managers on either side are trying to withhold information, or they may just not know the answers.

Kadambi agrees that the acquiring firm should have a general policy and strategy for action immediately following an acquisition and should share that quickly with concerned employees in the acquired firm.

"Unfortunately," he says, "it is sometimes very difficult for an acquiring organization to tell, at first, precisely what they want to do."

Furthermore, he points out, if the two firms were competitors before the acquisition or merger, information that could have been used for competitive advantage if the merger fell through would not be shared prior to the signing of the papers.

As soon as the signatures are dry, IS executives should not only begin asking questions, they should also be prepared to answer some. This is the stage at which assessments and negotiations between firms begin. According to Paul Zorfass, an analyst at The Yankee Group in Boston, IS managers would be well-advised to have thorough inventories of hardware, software, development projects and communications systems on hand for the new organization's assessment team.

"You've got to start out with an assessment of what the new site's application portfolio is, their technical capabilities, what kinds of machines they've got, what types of financial commitments sit behind all of those, and they need to have the same in reverse," says Fleet/Norstar's Sheppard. "What kind of applications portfolio does the acquiring corporation already have? And you need to go through a bit of a comparison process. It won't always be true that the acquirer has the best set of applications, and you've got to look at the possibility that the acquiree may have a number of things that he can offer."

The same is true of technical personnel. "Assume that there must be some awfully good talent in the other company or else they would not have been so successful," he says.

Relying on the kindness of strangers is probably not the best course of action, however. This is not the time for modesty, Zorfass stresses. "Lay out all of the software and the particular application solutions that you have built and also inventory the outstanding and committed projects and what the scope of some of those projects will be," he says. "Build a case why you are vital and why your solutions are the solution for that company."

It is also wise to be prepared for some questions about organizational structure and performance, particularly in terms of user support.

Look at nets

Expect that networks will be scrutinized with particular interest, Zorfass advises. "In the formal structure, network issues start coming up because data has to be transmitted," he explains. "The corporate backbone network is very critical because it brings new organizations into the fold quickly and provides senior managers with the information that they need to make the acquisition go smoothly."

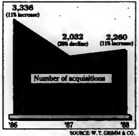
During the evaluation process, Sheppard notes that the two organizations also typically examine the flexibility in software licensing and hardware leasing agreements. If a firm recently bought or leased a mainframe, he says, you have to look at sublease or resale capabilities.

Arrangements with external service bureaus should also be included in the investigation, because they may contain penalty clauses for early termination.

All of this mutual discovery is time-consuming. Although the

Renewed appetite

The number of announced and completed acquisitions picked up again last year, when an average of six buyouts occurred each day



SOURCE: W.T. GRIMM & CO.
CW CHART: FRANK C. O'CONNELL

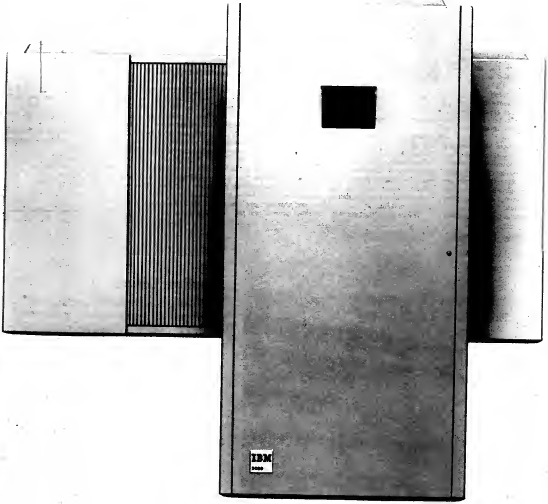
Priority picks

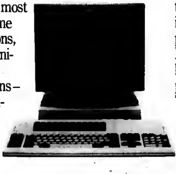
Consolidation cannot happen in a single stroke, so firms have to judge the effects of merging various systems. According to a recent study by the American Management Association and the Control Data Business Management Services, necessity rules in this situation. After surveying 109 companies that were involved in a merger or acquisition, the survey showed that respondents with incompatibility problems were quicker to set priorities than those with none.

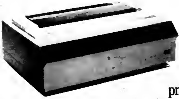
According to the survey, the top five priority areas are:

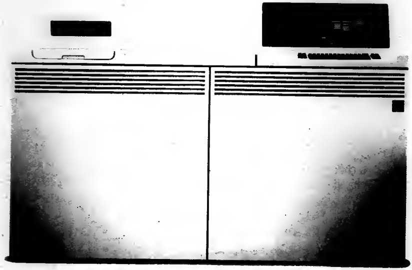
1. Financial
2. Operational
3. Payroll
4. Human resources
5. Benefits

The host.









discussions about the consolidation of Fleet Information Systems and Norstar Services began shortly after the agreements between the parent companies were finalized, it actually took the companies four or five months to define how they wanted to merge the applications, hardware, DP operations and application portfolios.

Also, Sheppard adds, even after the decisions were made about the number of centers to retain, the applications that should be preserved and the cities in which to locate, it took the newly joined IS organizations another nine months to put the bulk of the changes in place.

Once the basic inventory has been completed, new policies and structures start to emerge and serious reevaluation of projects begins.

"Major development programs, expenditure programs and so forth are going to come under severe and serious scrutiny, if not a downright 'Everything is on hold,'" Sheppard says. "You can expect that to happen fairly quickly."

In fact, he notes, in an instance in which one company or subsidiary is being folded into another, as in a takeover or a leveraged buyout, it is virtually guaranteed that all expenditures not directly and precisely related to the customer or to getting the product out the door will get some hard looks.

According to Bruce Gupton, president of Stamford, Conn.-based International Systems Services Corp., the assessment project team determines the strategy to be followed in terms of IS changes that support the acquisition or merger. "If that plan or strategy is appropriate, then things will work out very well. If that fundamental strategy is flawed, then you're in for serious problems."

Although Gupton asserts that for the most part these plans work, it is important to perform a formal evaluation of all alternatives and to make sure that management understands the choices and supports the approach that has being taken.

Many of the managers interviewed have been on both sides of the acquisition fence, but both Meschke and Sheppard note how difficult the post-event assessment interviews can be.

"People start out with a tremendous amount of pride in what they've put together," Sheppard says, "and it's very difficult to ask questions about the quality of their efforts without impinging upon that pride. At the same time, there's a tremendous amount of fear on all sides because things are going to change," he says. "That's the only thing you know when you start that process — that things are never going to be the same."

Meschke, who was involved in 17 of Pillsbury's acquisitions, says the first step he took when Pillsbury bought a company was to review the asset files and meet with co-workers.

"They were always very nervous and suspicious," he says, "so I tried to talk freely about the company and its benefits and whatever else they wanted to talk about to make them as comfortable as possible. I was there to do a job, not to spy on them, make them uncomfortable or put them out of work."

What an acquirer or dominant merger partner should not do, Yankee's Zorfass says, is stride into an established IS shop and try to impose his preferred solutions through brute force.

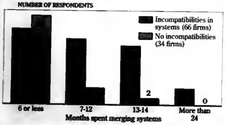
Casually terminating programs is also a surefire method for decreasing worker morale. "You're asking people to begin to terminate programs that they mortgaged their body and soul to get approved," DeJarnette says.

If an acquisition or merger has the potential to produce that kind of carnage in terms of projects, the IS executive on the less powerful end must also realize that careers are literally at stake. What managers have to do in such cases, DeJarnette explains, is resort to the "Dunkirk" approach: "You retreat to the beaches and get as many as possible off in small boats."

With luck and the right combination of organizations, the situation may never reach that point. Instead, you may simply have to get through a tough season of change. Ledford passed through one time of trial and has emerged philosophical. Whether that attitude will prevail through whatever upheaval results from the recent leveraged buyout of RJR Nabisco by Kohlberg, Kravis Roberts & Co. remains to be seen. Ledford says there have not been any specific changes resulting from the buyout yet, although he does anticipate that there will be some. "About all you can do is say 'Hey, we've lived through crises before; we can live through this one, too.' " ●

Time and differences

System incompatibilities can result in drastic slowdowns of the merger process; nearly 80% of companies without such problems say they were able to consolidate systems within six months



SOURCE: AN AMERICAN MANAGEMENT ASSOCIATION/ CONTROL DATA BUSINESS MANAGEMENT SERVICES SURVEY

CW CHART JOHN YORK

Consolidation game plan

Project teams are one of the best mechanisms for directing the fusion of information systems in mergers and acquisitions. But forming a team to handle the job does not guarantee success. Directing this potentially volatile process and insulating business users from fallout can be tricky.

Norman Himes was chief executive officer at Sunbank Service Corp. when it merged with Flagship Bank in 1983, resulting in a merger of 24 banks in 19 months. He oversaw the systems and operations consolidations for those banks. Now vice-president of strategic technology at American Management Systems, Himes offers the following suggestions for those who are faced with the task of assembling and directing teams to handle postmerger consolidation.

Make sure all the players are represented. Team members should represent the data processing, telecommunications and systems capacity departments as well as appropriate user disciplines, such as financial and sales. Representatives from other user departments should be allowed to participate when appropriate.

Don't neglect the prep work. There are a couple of important jobs that must be done before you can even start to think about executing any part of a conversion. One is to analyze the impact of contemplated changes on every aspect of the IS operation, as well as all the affected user departments. The other is to gauge user expectations and make sure they are realistic.

Check your provisions. The team leader must make sure his team has access to necessary tools and resources, which include project management training, project management software and methodology, measurement tools and a sufficient budget.

Keep to the middle. The team should introduce change in manageable components, otherwise it will be faced with implementing projects that are too big to complete or too small to be meaningful.

Establish a checkpoint. On the day of any system conversion, the project team should set up a command center where all information relating to the conversion is routed. This will help keep misinformation to a minimum.

Pass the word. The project team should ensure that each user department receives enough training before and after a systems conversion. A systems conversion after a merger is different from any other kind of conversion because the change is usually forced on the departments and emotions are likely to be running high. Adequate training can help settle those emotions and ensure that users understand and can handle the changes.

INTERVIEW

There can be life after a merger

Discovering that your organization is about to be acquired does not have to spell doom. Learn how to come out ahead by watching for typical problems and taking appropriate action

When an information systems executive discovers that his company is about to change hands because of a merger or acquisition, it does not necessarily mean that the end is near. In fact, it could be the beginning of improved status and unforeseen opportunities, according to M. Victor Janulaitis, chief information executive of Positive Support Review, Inc., a Los Angeles-based management consulting firm that helps companies going through a merger or acquisition manage their technology successfully. Janulaitis recently spoke with *Computerworld* Assistant Editor Sharon Baker about how companies can turn a merger or acquisition experience into a positive opportunity.

How well do most companies involved in mergers and acquisitions handle the process in terms of their information systems and the IS organizations?
It depends on the organization and how mature it is. A lot also depends on where an organization was with its systems technology before the merger. If the surviving corporation does not have a strong focus on IS technology, then the data processing area will be treated like a second-class citizen.

On the other hand, if the organization is focused and has a good chief information officer who's involved in the process, IS is typically dealt with very professionally.

Is the acquiring company always the one that dictates the terms at the IS level, in terms of systems, IS policies and staff?
No, and there are some striking examples of times when that has not happened. Baxter Healthcare Corp. acquired American Hospital Supply, for example, but if you look at that organization today, you'll see that the head of information technology at Baxter is the old head of information technology at American Hospital Supply. And one of the things that Baxter acquired was American's DP function. So in that situation, the surviving [IS department] was from the organization that had been acquired.

Do you think some companies in this situation miss out on opportunities for positive change relating to their IS organization?
Yes. One of the fallacies with a lot of acquisitions is that the company that is doing the acquiring has better systems than the firm they have acquired.

Are there substantive differences between mergers and acquisitions in terms of the impact on the IS organization?
In my mind, there's no difference. In any operation where one company joins with another, only one survives. Someone wins, and someone loses. If you have two DP functions, it doesn't make sense to have both. One will be eliminated.

So you would say that some IS layoffs are inevitable in most mergers and acquisitions?
Yes. The structure of the environment is also changing such that there are going to be fewer senior CIOs, because there will be a consolidation within the larger organization.

Does that mean that an IS executive should automatically pack his bags if he learns that his company is about to be acquired?
If he learns about it from the grapevine or from *The Wall Street Journal*, he probably should. But if he's part of the management team, then it is usually not an issue. In those cases, the CIO typically does very well. He's part of the inner circle.

And being a part of the inner circle also allows the CIO to better communicate to his staff what is happening.
Right, and that's very important, because one of the things that happens is that as soon as [a merger or acquisition] is announced, you have to act quickly to stabilize the organization. You have to make sure that people understand [what is happening] because if you lose people that know how to run certain systems, you're in trouble. You're not going to be able to do your job, and you might as well pack your bags. It's in the CIO's best interest to see that he knows who his critical resources are and what his lifeblood applications are and that he keeps the people involved with those things informed.

Victor Janulaitis

What are some of the typical problems that crop up in terms of the IS organization and information systems?
There are five key problems. The first is cultural. Every organization has a way of doing things and you have to understand that culture very quickly. Whoever the IS executive is, he has to understand his culture and the culture of the other company.

The second issue is organizational. You have to know who the decision makers are, who the people are who have authority.

The third issue is management focus. You have to understand the management of both the acquiree and the acquirer, so you can see where you fit.

The fourth issue is what I call the value of the function. Typically, people will start saying, Why are we spending so much for data processing? Why are we spending so much for communications? You have to have a way of easily evaluating and showing what the function can do.

The last issue is the economies of acquisition. Invariably, one of the things that happens in any acquisition is that jobs are either consolidated or expanded. You have to understand what the economies and dis-economies of acquisition are.

What can an executive do to minimize those problems?
One of the things he should do is not fight the process. He should be very open.

If you've just been acquired by somebody, you can say, "Oh shucks, I just lost the battle." If you do that, you'll be fired. Instead, you should quickly find out who's making decisions and how you can help and become part of the team. You've got to as quickly as possible understand the methods of the new organization — how they measure success, how performance bonuses are decided, and so on. It's like getting a new job.

Do you think the best that an IS organization can hope for in a merger or acquisition situation is to be left alone and unchanged?
If they're left alone and unchanged, I think it means they failed miserably somewhere. In any acquisition or merger, there should be some synergies and some change. No organization is so good that it can't learn something from somebody else. If the CIO can possibly improve his department's stature within the organization and be more involved in the strategic decisions of the organization, he's going to be better for it. And that's what he should work for. ●

Pink slip precautions

BY JAN FIDERIO

When two organizations are fused by a merger or acquisition, the result is often an overlapping and overflowing staff. It is not uncommon, therefore, for companies to reduce their work forces through early retirement, natural attrition or, more drastically, layoffs. If layoffs are imminent, the top executives involved should take great care to handle them sensitively, or the consequences could be devastating for employees and the corporation alike.

According to a recent study on mergers and acquisitions conducted by the American Management Association and Control Data Business Management Services, the number of problems an organization experienced after a merger or acquisition increased in direct proportion to the size of the layoffs resulting from the event.

> "I'VE HEARD many people say, 'Never again will I commit myself and my loyalty to a company. Never again will I believe that if I work hard, do my job, perform well, the company will take care of me.' "
>
> LARRY DeJARNETTE
> - JIA MANAGEMENT GROUP

Specifically, the study showed that organizations that reduced work forces were "half again as likely to find their profits reduced, almost twice as likely to experience high employee turnover and almost three times as likely to suffer losses in worker productivity and in market share."

While the report clearly states that this does not mean that necessary layoffs should be avoided, it does note that managers should recognize that such actions carry a price.

Middle managers are often left with the responsibility of minimizing the amount of damage being felt by the remaining staff. For those managers, keeping people's attitudes healthy is a top priority.

"As long as you're there, as long as you have an executive function, you have a responsibility to get the job done," says Larry DeJarnette, a principal at JIA Management Group, a division of A. T. Kearney, Inc., a Santa Monica, Calif.-based consulting firm. "If you can't match up to that, then I believe you're morally obligated to get out."

Go with the flow

Marvin Meschke, manager of property accounting at Minneapolis-based Pillsbury Corp., says he is trying to keep morale up and the work flowing, but it is not easy when both you and your staff know that you are on your way out. Since Pillsbury was acquired by Grand Metropolitan PLC, there have been many layoffs in the accounting area, and Meschke is also leaving as a result of restructuring.

Because of Meschke's 10 years of experience, Grand Metropolitan needed him to stay with the firm for a set period of time; it persuaded him to remain by providing a financial incentive.

"They've got special packages for people who are leaving — special severance pay, benefits, outplacement services and all kinds of things," he says. "If you want the package, they give you a date on which you can leave."

Meschke's date was June 1. In the meantime, he has his work cut out for him. "They want me to finish evaluating all the assets and make sure that [a current project] is at a certain stage before I leave," he says.

Meschke may not be thrilled about his current situation, but he says he feels that Grand Metropolitan has been financially fair.

Both fairness and openness count for a lot, claims Vasu Kadambi, former manager of electronic banking systems at Crocker National Bank in San Francisco. When Wells Fargo Bank acquired Crocker National in 1986, the majority of the electronic banking systems, which Kadambi managed for Crocker, were decommisioned, resulting in many layoffs.

Although it was not a pleasant situation, Kadambi says, it was handled professionally and well. Wells Fargo executives told employees what the priorities were for the layoffs and made sure that interested employees knew the prospects and processes for being rehired.

"Wells Fargo did everything they could to make the acquisition as painless as possible," he notes. "They had internal job-posting programs and outplacement programs to assist candidates in finding jobs."

Unfortunately, no matter how smoothly layoffs are handled, they can still leave long-lasting scars.

"I have heard many people say, 'Never again will I commit myself and my loyalty to a company. Never again will I believe that if I work hard, do my job, perform well, that the company will take care of me,' " DeJarnette says. "It is extremely difficult for people to rationalize this kind of thing, regardless of how much severance pay they may get." ●

Taming IS consolidation costs

Effective communication can keep integration tab in line

BY BONNIE MACKEIL

When Cal Gas Corp. was acquired in 1986 by Amerigas, the unified company, Amerigas/Cal Gas, incurred lower than expected costs for information systems consolidation.

Not all mergers produce as clear-cut a success story as this purchase of the Sacramento, Calif., company by Amerigas, a division of UGI Corp. based in Valley Forge, Pa.

A recent survey of Chicago's 1,000 largest firms by the information management division of Altschuler, Melvoin and Glasser, a Chicago-based accounting and consulting firm, found that roughly half of those firms that had been through a merger or acquisition experienced budget overruns. On average, consolidating and reconciling systems pushed expenses more than 30% over budget. In some cases, the differential was 100%.

There are many reasons why information systems consolidations can get out of hand. In some cases, the decision makers within the company are not asking the right questions at the time of the merger, says Norbert J. Kubilus, vice-president of management services at Optimal Solutions, Inc., a Hoboken, N.J.-based consulting firm.

In other instances, the higher-ups may be unwilling to divulge information because they are concerned about leaks that could jeopardize the merger.

Even when the two companies involved are communicating, they are not necessarily talking about the right things, says Eric Rolfe Greenberg, editor of the American Management Association's research report on the effects of mergers and acquisitions. "There is a lot of information flow between the two companies, but usually little of it has to do with information systems," he says.

Solidifying plans for life after the merger is crucial, Kubilus says, and the planning process should include leaders from the IS department. "The IS department is often excluded from those discussions because management doesn't have a total appreciation for the impact of information systems," he says.

Early planning was a big factor in the cost-efficiency of the Amerigas/Cal Gas systems merger. According to Don Owens, vice-president of information services at the company, the information systems department kept its costs down by taking action quickly, eliminating the need to run in dual mode for a prolonged period of time. "Instead of taking over a year to consolidate our financial applications," he says, "we did it in just over four months."

Optimal's Kubilus

Within the first month of acquisition, Owens says, the parent company had already decided which systems were going to stay and which were not. The companies acted on this decision as soon as the acquisition had gone into effect.

This kind of direction also helped the company maintain its productivity. Owens says most companies lose productivity in the wake of a merger. At Amerigas/Cal Gas, he says, people knew exactly what they were supposed to do and when they were supposed to do it. "People knew whether or not they were staying and when they were leaving."

Amerigas/ Cal Gas' Owens

To ensure a smooth transition, the company offered extra severance pay to exiting employees as an incentive to train their counterparts.

To further ensure an effective consolidation, Kubilus suggests that responsibility for implementing the details of consolidations be placed with work groups culled from various IS staffs within the effected organizations.

Kubilus recommends going further than just taking the traditional inventory of hardware systems and software applications. Attention should also be paid to whether any of the applications software on either side has been customized, because nonstandard code could affect compatibility and result in increased costs, he says.

Kubilus also advises examining vendor contracts. In many cases, a change in ownership for a company will void existing maintenance or dollar-volume purchasing contracts, thereby canceling negotiated savings.

To be absolutely safe, he says, companies should put clauses in such agreements to permit transfer to new owners, even if a merger or acquisition does not seem likely. Those who are facing a change in ownership should not just write off existing contracts, however. If the company is a valued customer, Kubilus says, then the vendor will likely accommodate its needs. ●

MacKeil is a Computerworld *researcher.*

Ease transition by taking time to check systems assumptions

BY JAMES PRUITT

Many company functions are affected by mergers and acquisitions, but few as drastically as MIS and communications, which must cope with a host of compatibility and security issues in addition to other kinds of fallout. Technical and management personnel can, however, reduce the incidence and impact of problems by taking a careful inventory of the resources at their disposal.

Security, for example, can be problematic in a number of ways. To begin with, merging companies are likely to have redundant and possibly incompatible security packages in place. Beyond that, however, there is the possibility that poorly planned systems security can adversely affect application software and cripple vital business units.

For the most part, the degree of difficulty involved in combining security systems depends on how simple or intricate the existing systems are. In the Gulf Oil Co. and Chevron Corp. merger, the terminal equipment used by both companies' gas station attendants were compatible and so, to a large extent, were the security procedures used in both retail networks. Few complex system security measures were either in place or needed, because every customer is identified by his credit card and personal identification number and is restricted to a very limited set of activities.

Last year's merger of Fleet National Bank and Norstar Bancorp, Inc. produced a somewhat more complicated security situation because it entailed not only combining networks but also choosing between two security systems.

Robert Drumm, president of Fleet/Norstar Services Corp. in Albany, N.Y., says it was not particularly easy deciding between IBM's RACF and Computer Associates International, Inc.'s ACF-2. Originally, Drumm contemplated a temporary hybrid solution, running ACF-2 under RACF as an interim step on the way to a full RACF implementation. After some evaluation, however, that notion was reversed. "Along the way, we found that ACF-2 better supported our applications," he says.

In another case, American Airlines, which announced in February that it will merge its Sabre travel agency network with Delta Airlines' Datas network pending approval, is still trying to decide how to combine both networks' security systems, according to John Hotard, a spokesman at American. "Initially, the systems will be connected at the system level," he says, "and each will maintain its own user security."

Some of the factors complicating the decision include the number of travel agents who need security clearance onto the network, the resulting transaction traffic and the criticality of the systems to both airlines.

> ANOTHER dimension that can have a crucial effect on how easily information systems can be merged is the amount of time available to complete the transition.

The larger and more complex a network is, in terms of its terminal and line addressing scheme and physical architecture, the more difficult it is to rapidly expand it to serve merged users.

In retail networks, like those of the airlines, there are many more users who are outside of the company's direct control. The lines to connect them make up a major network that either has many dedicated locations or a large number of dial access ports. In any case, individual terminals or users must be properly identified, given appropriate levels of service and denied access to inappropriate functions.

In manufacturing, by contrast, there is a minimal number of ports on the network open to outsiders. Networks are largely contained within the company's area of control, and wide-area connections between locations use high-capacity technology that is not amenable to penetration by any but the most sophisticated espionage effort. In addition, there are relatively few human users requiring security processing.

Another dimension that can have a crucial effect on how easily information and communications systems can be merged is the amount of time available to complete the transition. Because the timing is the only factor firmly in the hands of management, the team planning the merger implementation must be aware of how time-critical their decisions are for the systems and network departments. A simple conversion of systems can be rendered difficult by an overly aggressive schedule, turning a difficult project into a debacle. •

Pruitt is a principal at James Pruitt & Associates, a consulting firm based in Euless, Texas.

The IBM 360 turns 25

360

CONTINUED FROM PAGE 1

1410 to the 360.

"It was a big job, a big step, but we decided that we had to move forward," Howard says. "We liked the fact that once we converted, we wouldn't have to change again." The firm still uses programs that were written on the 360.

Limited growth patterns

Before the 360, large IBM users had only been able to grow with IBM's relatively small incremental performance boosts. DP organizations had two choices: either add another system and double their costs or change architectures and almost completely rewrite their code. This scenario was also common among the mainframe competition's product structures, says John Hart, vice-president of International Data Corp., a market research firm in Framingham, Mass. Hart is a former IBM employee who sold the 360.

When the 360 landed, the competition was highly specialized (see story page 83). Indeed, IBM itself had distinct platforms with different performance ranges on both sides of the line — the 1400 series commercial processors and the 7000 series scientific processors.

With the 360, "IBM offered something for everyone," Hart says, "but it wasn't optimized to perform one task extremely well." Withington says that "many observers believed that IBM had made a mistake with the unoptimized machines."

The 360 was also a significant risk for IBM in the commercial arena. Because the 360 was not backward compatible with the successful 1400 series and the conversion asked users to reinvest in both code and development expertise, it opened the gates for competitors.

Honeywell, Inc. seized the moment to clip IBM sales with its H-200, a Model 1401 clone that was faster and less expensive. Introduced in December 1963, the H-200 came with a package called the Liberator that permitted 1401 programs to run on Honeywell hardware.

Marketing maneuvers

Before the vigorous Honeywell competition, however, IBM had been capitalizing on its marketing strategy. Leasing the 1400 was more expensive than leasing the 360. IBM assumed that many 1400 series users would stay put, and it would enjoy the steady high revenue. But companies continued to defect to Honeywell and IBM belatedly offered 360 microcode several months later — a move that saved some market share for IBM, Withington says.

On the high end, IBM had to stave off defections to Control Data Corp.'s number-crunching Model 6600, which had been announced in August 1963. In response, IBM promised high-end 360 Model 90s, which did not materialize for 18 months.

Two weeks before the IBM 360 announcement, Ken Kolence, now an independent consultant in Palo Alto, Calif., reported to CDC software development headquarters there to confront the 360 challenge. "I was at Control Data long enough to know what a horrible mess they were in," Kolence says. "When the 360 announcement came out, my heart really sunk."

Kolence notes that IBM's giant leap was frightening because it brought new technology into an unsophisticated computing world. "It looked like IBM was taking over all of operations," be says. Kolence points out that the 360 announcement was nothing more than vaporware — there was at least a four-month lag before the first products arrived — but adds that "the ridiculous specs were sufficient in detail to shift the mind-set of everyone."

Despite the competitive hustle the 360 announcement generated and the numerous marketing rejoinders IBM had to use to save itself, IBM emerged victorious. The 360 increased IBM's dominance in the marketplace by at least 20%, from 50% to 70%, Withington estimates.

Despite formidable competition from vendors offering lower priced and more creative architectures over the years, IBM has stayed with the 360 architecture. It has had to. "If IBM had changed architectures, it would have invited its competitors in," Hart says.

The 360's *leap in architecture offered something for everyone*

Although IBM has optimized its architecture around the 360's technology, it still boasts top market share in the mainframe market today. But it has not been easy. Twenty-five years ago, main memory alone cost approximately $1 million per megabyte. In contrast, real memory today costs about $8,500 per megabyte.

In the 1970s, IBM introduced virtual memory because customers could not afford large increments of memory at such prices. Although the cost of main memory then dropped to about one-sixth the original price, IBM in turn increased processor prices to keep its profits stable.

From vaporware to a platform whose rudiments thrive in IBM's Enterprise Systems Architecture has been an audacious leap — a leap, current IBM observers say, the firm would repeat given the same constraints.

"No one has come out with an architecture — whether parallel, serial or neural — that would mandate that a prudent organization convert," says H. Pat Artis, president of Performance Associates, Inc., a capacity planning consultancy in San Diego. "Given that the Fortune 500 has billions of dollars in CICS and IMS applications," be says, "the 360 has a life of its own." •

Passing the test of time

BY JEAN S. BOZMAN
CW STAFF

For 22 years, the New York City Personnel Department's IBM 360 Model 20 has been marking multiple-choice civil-service exams. Legions of fire fighters, police officers and even data processing operations managers have been passed or failed by this master test-marker.

But now, isolated by incompatible test scanners and outdated tape drives, the city's 360 is in its last days, says Fred D'Alo, MIS director at the personnel department. Installed on-site in 1967, it will soon be replaced by an IBM Application System/400 Model 30 and carted off to the New York Bureau of Salvage.

"I'm not going to shed a tear," D'Alo says, "but, actually, it's been here longer than I have." One of an estimated 175 360s still being used in the U.S. — according to Computer Intelligence in La Jolla, Calif. — the city's 360 has been hanging on despite a dependence on telephone transmission of test answers from the city's IBM 3090 data center to the 360 for processing.

New York City's D'Alo *says goodbye to a classic*

Until the 1970s, the 16K-byte machine spit out civil-service certification status on "DO NOT FOLD, SPINDLE or MUTILATE" punchcards. The 360's demotion to a remote job entry processor came when its 800 bit/in. tape became incompatible with updated test scanners. "We were forced to upgrade to a scanner that output data onto 1,600/6,250 bit/in. tape," D'Alo explains. "That's when we disconnected the 360's tape drives."

Servicing was less of a problem. IBM provided the parts, and a retired IBM field engineer was available on a per-diem basis to repair the machine when it faltered.

"The fact that it's still here is a tribute to the equipment itself," D'Alo says. "But it's also a tribute to my operations staff that they are still able to do things with that machine." To date, the 360 is still the only mainframe on-site — and it still has its own air-conditioned computer room in downtown Manhattan.

The new AS/400 Model 30, when it comes in June, will still be able to do remote job entry for the city's 3090s, which are in a separate location from the Personnel Department. But it will also be able to support on-site personnel department applications. Even now, the department accesses the city's 3090-based Adabas database management system from Software AG of North America, Inc. through separate IBM Personal Computers — and some unattached IBM 3270 terminals that dial up the 3090.

But perhaps the 360, as a faithful public servant, deserves a better fate than being cut up for scrap metal, D'Alo adds on reflection. That's why he is considering asking the city to donate it to a museum for public viewing. "Really," he says, "it's in pretty good shape for a 22-year-old machine." •

Mainframe mainstay will thrive into '90s

BY ROSEMARY HAMILTON
CW STAFF

And you thought that Timex watches held up well.

While the IBM 360 architecture will get its share of refinements, its basic foundation, now 25 years old, will remain solid for most of the next decade. So say analysts, users and, perhaps most importantly, IBM.

"It's going to be around for a long time," says Martin Clague, assistant general manager of marketing for IBM Enterprise Systems, "into the foreseeable future."

Despite these predictions, some observers claim that IBM cannot do much more with the 360 architecture, which evolved into the 370 line, because it is fast approaching its physical limitations for improvements. Today's systems have their roots in conventional, sequential processing, which executes only one instruction at a time.

Most consultants say IBM will eventually have no choice but to move to a parallel processing-like architecture if its mainframes are to achieve processing performance in the range of several hundred million instructions per second and beyond.

But such a departure from today's mainframes will not take place until the late 1990s, industry observers add. Before then, they expect IBM to gradually change the 370 so that current users can migrate easily to new and better generations.

Marty Gruhn, vice-president of the Sierra Group in Tempe, Ariz., says, "IBM just can't take a solid right turn. It is committed to extending the 370 architecture. There's just too much money invested out there."

Analysts expect a balancing act from IBM during the next several years as it maintains 360 compatibility and also adds new features to the architecture to stay technologically current.

Today's 370 software will run on future generations, but as time passes, it will be able to take advantage of less and less of the system's enhancements, according to R. P. Tasker, vice-president of the software research group at International Data Corp., a market research firm in Framingham, Mass. This scenario would resemble IBM's Application System/400 approach, in which users can run System/36 code on the new platform, but they cannot take advantage of all the functionality in the OS/400 software.

"You can bet on compatibility," Tasker says, "but the old software won't exploit the new features."

Observers say they expect today's mainframe to slowly change — a shift already under way — from its role of the corporate workhorse to the heart of a processing complex that will consist of dedicated processors, such as database supervisors and network managers. IBM is expected to incorporate reduced instruction set computing technology into the 370 environment, particularly for these dedicated systems, which would be more suitable to a limited instruction set than a generalized system.

In addition, fiber optics will play a critical role in this processing complex, linking both the dedicated local processors and allowing remote systems to function as peers in the setup.

While IBM's Clague would not comment on this speculation, he did say that he expects the 360 code written in the 1960s to vanish completely in the next decade.

The software "has transitioned over the years from 100% in the late 1960s to about 10% today, and within five to 10 years, it will be zero," Clague points out.

But there is already evidence of this transition in today's IBM 3090s, he adds. The current generation relies on a RISC-based engine to control the channels, Clague says, and there are separate control units for system components such as the direct-access storage device.

"What they are describing is in some ways what the 3090 does today," Clague says of the industry speculation on processing environment. "The difference is it's in one system."

Observers expect an extension of these changes in the next mainframe generation, now known as Summit, which is widely expected to arrive in late 1990. Summit will not be a major architectural departure, observers say, because users would not stand for it.

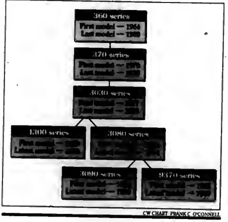
"I'm expecting a couple of major breakthroughs in the next three to five years," claims Jack Cooper, president of CSX Technology, the technology arm of transportation firm CSX Corp. in Jacksonville, Fla. "But [Summit] will likely be a continuation. I don't think the architecture will be made obsolete."

Jeffry Beeler, an analyst with Dataquest, Inc. in San Jose, Calif., says IBM will get by with its multiprocessor approach through most of the 1990s with Summit and follow-on systems.

"We see Summit as a further refinement of the 370 rather than a departure," he says. "There's enough capability left in the 370. After Summit, we may see a radical change." •

The beat goes on

IBM's 360 has evolved through a number of generational rebirths



CW CHART FRANK C. O'CONNELL

The men behind the machine

BY PATRICK WAURZYNIAK
CW STAFF

The main architects of the original IBM 360 development team may have scattered in the ensuing quarter-century, but most remain actively involved in the industry.

Of all the people who contributed to the 360 project, three men were truly architects of the system, recalls early 360 manager Bob O. Evans, currently executive vice-president of H&Q Technology Partners, a Menlo Park, Calif.-based venture capital company. The three were Gene M. Amdahl, Frederic Brooks and Gerrit Blaauw. Brooks, who managed the main architectural engineers, including Amdahl, is currently Kenan Professor of computer science at the University of North Carolina at Chapel Hill. Meanwhile, Blaauw, whom Amdahl characterizes as "my right-hand man in architecture," is professor emeritus at Twente University in the Netherlands.

Evans, who retired from IBM in mid-1984 after spending 33 years there, started with the firm in Poughkeepsie, N.Y., as a junior engineer on the 701 computer project. He eventually became a manager of the 360 project, after being picked by T. Vincent Learson, senior vice-president of IBM's data processing group, to complete a study on the Data Systems Division's proposed 8000 series.

"In my opinion, [the 8000 series] was inadequate for lots of reasons," Evans says. "After a short period of infighting ended in 1961, I formed a group that led the [360] development, which was called the New Product Line group."

360 pioneer Amdahl

But the most famous of the 360 visionaries is Amdahl, the University of Wisconsin theoretical physicist credited by many of his peers with designing much of the 360 architecture.

Amdahl joined IBM in 1952 and held key planning and engineering posts for the IBM 704 and 709 computers; he left the company in 1955 and returned in 1960 to take a pivotal position on the 360's architectural design team.

He left IBM in 1970 to form Amdahl Corp., the highly successful Sunnyvale, Calif.-based maker of IBM plug-compatible mainframes and peripherals. Amdahl has since formed several other firms, including the ill-fated Trilogy Systems, which was purchased in 1985 by scientific computer maker Elxsi Ltd.

Amdahl's fifth and most recent start-up is Cupertino, Calif.-based Andor Systems International, which is trying to make a smaller mainframe with low power consumption to compete directly with IBM's current top-of-the-line 3090 class.

Amdahl was responsible for the preliminary engineering data-flow design on the 360 Models 20, 30, 40, 50, 65, 75 and 92. As manager of architecture, he remembers the task as monumental.

"I had been designing computers for 13 years before we started the 360," says Amdahl, whose earlier work included the Wisconsin Integrally Synchronized Computer, or WISC, for graduate students at the University of Wisconsin.

"The [360] numbers all had to be compatible. The architecture had to allow you to realize the function precisely with the lower cost and performance in the lower models," Amdahl says. Managing the data flow with the appropriate performance and cost ratio was, he says, "a very complex, demanding task" on a product line that eventually spanned an estimated 600-to-1 performance range from the smallest to largest machine.

Several other people played crucial managerial and development roles, particularly in software, for the 360. Among the designers heading up software efforts was Carl Reynolds, now vice-president responsible for communications and data processing at Culver City, Calif.-based Hughes Aircraft. Reynolds formerly managed development of the OS/360 operating system during the Data Systems Division 360 announcement.

In 1964, while at MIT, Allan Scherr worked on time-sharing projects that have since evolved into IBM's TSO and TSS. He says he was not particularly thrilled by the introduction of the 360. "I fell in love with the [IBM] 7094, and I was quite upset with the 360," he recalls. Now an IBM Fellow and vice-president of development and integration at IBM's Application Systems division in Milford, Conn., Scherr joined IBM in 1965 and began working on IBM's hardware architecture for virtual storage.

The 360, he says, "was quite a bit different, and it took years to get used to it." But the advantages offered by the 360, including the virtual memory and time-sharing capabilities that would come later, presented a case for IBM's new architecture over competing systems of the day. "What the software brought to the party was the modern operating system," Scherr says. "If you [look back] before OS/360, there were not many modern operating systems for general-purpose computers." •

360 software

Where it came from, what's ahead

BY STANLEY GIBSON
CW STAFF

The IBM 360 brought with it a programming environment that has endured, with changes, to the present day. Indeed, it is likely that the very concept of a computing environment was the historic processor's most significant contribution.

"It created a culture in and of itself," offers Mario Morino, chairman of Vienna, Va.-based Legent Corp., which was formed by a merger of Morino Associates and Duquesne Systems, Inc.

When IBM unbundled hardware from software in 1969, the 360's huge installed base made the independent software vendor (ISV) possible. "The 360 enabled a real package to be built. It made sense for ISVs to write for that environment," says John Imlay, chairman of applications software vendor Management Science America, Inc. (MSA) in Atlanta.

MSA's Imlay

Many of the landmark packages for the 360 and 370 environments began as special creations for large customers — improvisations that other firms needed as well. Westwood, Mass.-based Cullinet Software, Inc.'s IDMS database management system was originally developed at B. F. Goodrich. IBM's IMS database management system was written for North American Rockwell, and CICS was developed by IBM for utility companies, recalls John Birch, currently chief technical officer at McCormack & Dodge Corp. in Natick, Mass. Birch joined IBM in 1962 as a programmer to work on the then top-secret 360.

"Products were developed by necessity and by opportunity, not in the execution of a grand plan," Morino explains. Not only were applications ripe for the writing, he says, but the 360's OS/360 operating system was ripe for the fixing.

"IBM delivered minimal software because they didn't get paid for it," says Martin Goetz, chief executive officer of Syllogy Corp. in Hackensack, N.J. "This created a crisis for the user and demand for software."

One user Morino recalls, but declines to name, canceled an order for 24 IBM 360s because they were so far behind in being able to implement them. Nonetheless, like pioneers on the prairie, most users could not turn back. Those who had bought the 360 had to do the best they could with it. And like the pioneers, most eventually overcame their difficulties and flourished.

Trendsetter

The success of the 360 set the precedent for other successful computing strategies. Digital Equipment Corp.'s VAX architecture replicated the 360's formula, mating a constant software environment with a variably scaled hardware platform. Similarly, Unix is gaining popularity because of its ability to run on a wide variety of hardware.

Even so, IBM itself deviated from the single-architecture approach when it introduced a grab bag of disparate midrange computers and operating systems during the 1970s and early '80s. Today, a quarter century after the birth of the 360, IBM is trying to recapture the magic of a single environment through its Systems Application Architecture (SAA).

Even within the 360 architecture, disparate operating systems have complicated matters. OS/360, first known as PCP, was followed by variants MFT and MVT, which evolved into MVS in 1974. DOS, introduced in 1966, became DOS/VSE. Meanwhile, VM grew out of IBM's Cambridge, Mass., research center and was introduced in 1972. Today, MVS and VM are included under the SAA umbrella, while VSE is not, even though it still has a large number of users.

To keep the 360 and later the 370 on top, IBM could not avoid migrations completely. The first major migration with the 370 took place in 1970. But when a truly radical migration loomed with the so-called "Future Systems Project" of the 1970s, the new processor was shelved — later to appear as the System/38 — despite what many consider even now to be its superior architecture.

Many users found the subsequent migration to XA difficult. Now, users are being prodded to migrate to MVS/ESA, which many users agree is easier than the move to XA.

Enterprise Systems Architecture (ESA) extends data addressability to a theoretical high of 16 terabytes and creates such performance enhancers as data spaces and hiperspaces. Currently available with MVS as MVS/ESA, it will be offered with a coming version of VM as well, IBM has said.

ESA gives the IBM mainframe world a bright future, most observers agree. But the real programming environment, they say, is SAA. Not surprisingly, many ISVs are welcoming SAA with open arms, seeing in it the same kind of programming opportunity that first appeared with the 360.

"SAA will be the software architecture of the '90s," says Michael Hunt, MSA's executive vice-president in charge of research and development. "Everyone we talk to has bought the architecture and is planning to implement the standards."

But SAA has been controversial from the start. Excluding VSE from the architecture cuts off a large slice of 370-architecture users. Morino points out that many users will not want a single-vendor environment that does not include DEC or Unix. "The challenge [for IBM] is to coexist, yet dominate, in a multivendor world," he says.

Now, nearly two years after its announcement, SAA is far from complete. Like its 360 predecessor, SAA appears to be a grand vision that will only become reality after years of hard work. •

Early technology gave users, rivals the big chill

BY JEAN S. BOZMAN
CW STAFF

While IBM's 360 brought a figurative chill to the hearts of competitors, dealing with the new technology gave some customers cold feet — literally.

Ed McDonald, division manager of information processing at Texaco, Inc. in Houston, remembers well the common experience of users who had to wait for 360 repairs: "If you stood out on that raised floor too long, you got cold feet," he recalls. "You have to remember that the air blowing up through those raised-floor vents was cooled to 50 degrees."

"Nothing on the 360 hardware could really be called reliable, especially in those early years," adds a man who had been trained by IBM in 1965 to help customers use the newly shipped mainframe. Often, he says, the weakest link in the system was its console — which was a modified IBM Selectric typewriter. Known to fail frequently, the Selectric sometimes had to be bypassed just to get the system up and running again.

Because he is now an executive at a major IBM competitor, the former field engineer wishes not to be identified by name, but he is more than happy to recount the pioneering spirit: "The machine could run along, and the

Continued on page 84

Outpacing the field

BY JULIE PITTA
CW STAFF

The 360 is a marathoner running in a field of sprinters.

While the mighty mainframe has steadily maintained a lead since it was introduced 25 years ago, a number of competitors have jumped into the race. However, few have had the endurance to keep pace with the 360.

In the years since the 360 debuted, IBM has not suffered from the overconfidence exhibited by many who lead the pack. "IBM has spent billions of dollars to take that architecture, shape it and mold it," says John Logan, a vice-president at the Aberdeen Group in Boston. The 360 architecture has evolved into the 370, which analysts say will enjoy the nearly two-decade longevity that its predecessor has maintained.

True blue

One reason IBM has retained the loyalty of its installed base while bringing new users into its fold is the steady flow of upgrades and enhancements it has made to the 360 over the last quarter of a century. The latest development is MVS/ESA — the new operating system for the 370 architecture. Enhancements such as MVS/ESA have enabled IBM to repel the continuous onslaught of competitors that includes some of the largest companies in the U.S.

Today, the 370 competes with companies promoting alternative forms of computing — like reduced instruction set and Unix-based computing — and newer technologies like parallel processing.

However, industry watchers say they expect longtime IBM users to remain loyal. "A lot of these MIS executives were weaned on this architecture," explains Bonnie Digrius, director of large systems research at Infocorp in Cupertino, Calif.

"There are strategic applications that they've written on the 370 that would be costly to port to another system," Digrius claims.

When the 360 came onto the scene in 1964, it was a crowded field. Among those firms with competitive systems were Burroughs Corp., Sperry Rand Corp., NCR Corp., Control Data Corp. and Honeywell, Inc. General Electric Co. and RCA Corp. dropped out early, leaving the five that became known as the BUNCH companies.

Honeywell's success in winning price-sensitive government bids allowed it to emerge as the leader of the BUNCH, but it was never able to parlay its position to anything more than No. 2 to IBM. Sperry Rand and CDC became popular with scientific institutions. Burroughs' strength was mostly in vertical markets, such as banking and financial institutions that were looking for less costly solutions than IBM's.

The early 1970s saw the emergence of the plug-compatible makers — vendors such as Amdahl Corp. and National Advanced Systems that built viable businesses around cloning IBM mainframes. Their selling feature is that their systems are cheaper and, in some cases, faster than the originals. Amdahl, considered the most successful of the plug-compatible makers, has emerged after a rough beginning to become a nearly $3 billion firm today. But this is a tiny sum when compared with IBM's revenues, which for systems priced at more than $700,000 and sold in the U.S. in 1988 was $29.7 billion, according to Infocorp.

The DEC challenge

Digital Equipment Corp., with its VAX family of minicomputers, is the latest to surface as a serious challenger to the IBM mainframe family, and it faces a formidable race. IBM has what looks like an insurmountable lead, with a huge installed base within large corporations. "The applications that exist on these machines are strategically important to these corporations," explains Digrius. "Moving those applications to another platform would be a monumental task."

Midrange companies like DEC are using cost-effectiveness as their sales pitch. Their systems are cheaper to run than any member of the 370 line, they claim, and independent research seems to bear that out.

However, Aberdeen's Logan says he believes DEC will have better success using IBM's lead to its own advantage, not running right at IBM. "DEC is surrounding the IBM mainframe," he says. "It's a strategy of, 'Let the data reside on the mainframe, suck it off and run the application on the minicomputer.' Why should they attack IBM head-on when they can run around it?" •

Big chill

CONTINUED FROM PAGE 83

lights would flash, and you knew that something was happening inside. Then a red light would come on, and it would stop. If you couldn't figure out what went wrong, you were reaching for the phone to call for help."

Those lights shine bright and clear in the mind of Texaco's McDonald, who managed some of Texaco's 25 IBM 360s as a shift supervisor of operations in the mid-1960s. "There were quite a few lights to watch on the 360," he agrees. But the most important ones, he says, were the system light, which meant it was running the operating system; the problem-state light, which actually signaled that it was working on a job; and the wait light, which indicated that it wasn't working anymore.

When the wait light came on, IBM systems engineers tried to restart the system by pushing the blue initial program load (IPL) button on the right-hand side of the machine. "The IPL button contained the address of the disk drive that held the operating system," McDonald says. "When you hit that button, you were asking the disk drive to read the code that would boot the system."

If that didn't work — and it often didn't — it could be hours until the problem was resolved by IBM system engineers, but then operations personnel could finally go warm their feet.

Baxter Healthcare's Heschel

The young field engineers IBM trained in the mid-1960s — many of them today's large-scale IBM users — served as goodwill ambassadors for IBM, especially when the machines were out of service. "The 360s were poorly documented when they first came out," recalls George McQuilken, who served that ambassadorial role before going on to edit the *IBM Systems Journal* in the 1970s. He later helped to downsize the 370 architecture by designing remotely operated IBM 4300s.

McQuilken, now president of Codescope Corp., a Marblehead, Mass., software consulting firm, remembers how the changeover from a 1400 series model to a 360 changed life at the State Street Bank in Boston. "We used to have seven boxes of IBM punch cards, with about 2,000 cards per box. These were the cards in our source-code program. With the 360, the programs were kept on a disk drive and updated on-line."

The improvements in memory and the operating system going from the 1401 to the 360 also changed life at a large Eastern pharmaceuticals company, says its MIS director, who prefers not to be named. "[The 360 had the] first robust operating system," he recalls. "The 1401 operating system was just bootstrapped code that ran the hardware, and it only had 8K [bytes] of memory. The 360 had 64K [bytes] of memory, which was a geometric leap in addressable memory — and you could do multitasking." In fact, all these observers agree that they could do exactly three tasks at once — one in the foreground and two in the background.

"It was a whole new world in data processing," agrees Michael Heschel, then a young DP employee at Boeing Corp., now corporate vice-president of information resources at Baxter Healthcare Corp. "It was the first real modern business system and it allowed you to do high-volume applications like payroll and accounts payable."

> "WE USED TO have seven boxes of IBM punch cards, with about 2,000 cards per box. With the 360, the programs were kept on a disk drive and updated on-line."
>
> GEORGE McQUILKEN
> CODESCOPE CORP.

But although the architectural design "allowed you to get in with a small machine and move up through the line," Heschel says, field upgrades from that time bear little resemblance to today's. Rather than the standard array of configurations available now, IBM engineers would come into a user site with a variety of components and mix and match to the customer's needs.

Over the last 25 years, IBM mainframe upgrades and reliability have improved dramatically. "In the 1960s, you had three or four customer engineers working full-time at a large customer account, like a large bank," says one Fortune 500 petrochemicals company IS manager who was also part of the early field force for IBM. "At that time, three service calls in a day was about average at each site. Today, you have one customer engineer assigned to cover four sites, and he may get a service call once every two weeks."

Not only has the technology become more reliable, but the service aspect itself has become automated with the IBM 3090. "It detects a problem, and its built-in service processor analyzes the error," the petrochemical manager says. "Now, the machine itself dials up the support center to ask for a replacement part." ●

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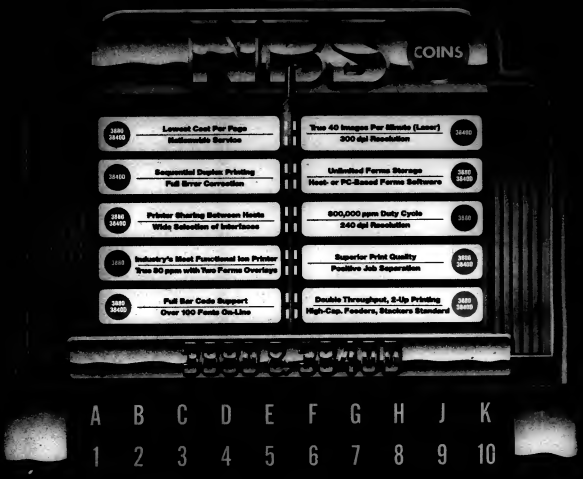

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To put everything in perspective, we have taken a brief look at where this young industry has been and how it is doing right now. It's all shown in the poster pictured here. Life size, it's 26" by 38", and it's full of interesting information on the new Information Age.

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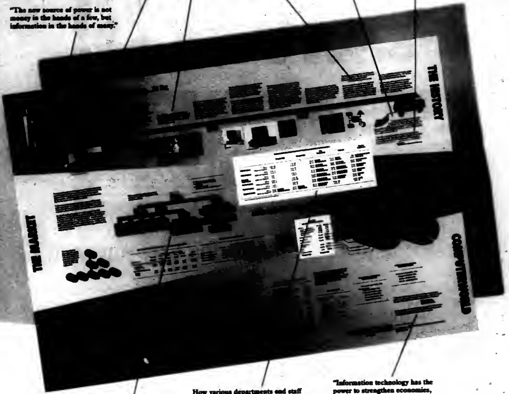

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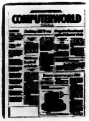

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INDUSTRY INSIGHT

Peter Bartolik

Bay State breakdown

For Sale: Preowned high-tech start-up region; once labeled 'America's Technology Highway.' Owners retiring to Cape Cod. Lots of potential; close to schools. Priced under market value.

Maybe it's a little far-fetched to sense a fire sale raging in the Route 128 region of Massachusetts. But the East Coast bookend to Silicon Valley these days is radiating about as much vitality as we saw in the gloomy presidential campaign of "Massachusetts Miracle" Gov. Michael Dukakis.

Sure, Wang and Data General have been on the ropes for some time. But Prime was always in its own class, and Apollo was a successful young innovator, albeit somewhat sluggish in the market of late.

So here we have Apollo selling out to Hewlett-Packard for half what it was valued when its stock went public. And there's Prime, done in by its own acquisition binge and desperately seeking an HP-type savior to bolster its debt-mired strategy.

DG tools along, occasionally showing a flair for innovation

Continued on page 92

Industry profits sag

BY ALAN J. RYAN
CW STAFF

The firming up of the U.S. dollar, the dynamic random-access memory (DRAM) shortage, intensifying competition and late products all factored into the slowdown in the rate of profit growth on both the hardware and software sides of the industry, analysts said last week.

While revenues were generally up, many of the industry's major players, including Apple Computer, Inc. and Lotus Development Corp., reported that their earnings had declined since the same quarter in 1988 (see stories page 90).

"There has been a more than proportional decrease in profit margins," said Marc G. Shulman, an analyst at UBS Securities, Inc. in New York. Shulman said at least part of the slowdown has been caused by the firming up of the U.S. dollar overseas.

While some companies continued to blame their reduced profits on the DRAM shortage, Shulman said that blame was misplaced.

Lawrence Harris, an analyst at Bateman Eichler, Hill Richards, Inc. in Los Angeles, said, "If the U.S. economy continues to slow down, it is possible that the June quarter may be similar to the March quarter." Still, he said, "Intel reported earnings higher than anticipated," even though they were nearly flat with last year's level. "It may be a positive signal regarding demand in the June quarter."

1989 first-quarter earnings

Revenue goes up — profits mostly lag

	Revenue January through March (in millions)	Percent change from 1988	Net income January through March (in millions)	Percent change from 1988
ADP	$454	9%	$56.1	10%
Advanced Micro Devices	$269.6	(5%)[1]	$10.1	(50%)
Apple	$1.2B	44%	$56.4	(29%)
Ashton-Tate	$89.8	24%	$11.5	3%
Computer Task Group	$58.5	16%	$1.5	(11%)
Intel	$713	12%	$97	3%
Intergraph	$185.7	6%	$19.5	14%
Lotus	$120	2%	$5.3	(71%)
MCI	$1.5B	32%	$135[2]	132%
Microsoft	$197	22%	$41.1	10%
Motorola	$2.2B	11%	$123	8%
NCR	$1.3B	(2%)	$61	(18%)
Seagate Technology	$357.5	5%	$21.5	(7%)

[1] Parentheses indicate decrease or loss
[2] Reflects extraordinary charge of $10 million for early bond redemption

CW CHART: FRANK C. O'CONNELL

IBM microcode issue sits in limbo

BY ROSEMARY HAMILTON
CW STAFF

The microcode battle between IBM and the Computer Dealers and Lessors Association (CDLA) could become an explosive issue with far-reaching implications.

But for the moment, it is going nowhere.

At the association's spring meeting held earlier this month in Nassau, CDLA officials said they are waiting for the U.S. Department of Justice to respond to a position paper CDLA filed earlier this year on IBM's handling of microcode issues.

CDLA's Bouldin

If CDLA gets its way, the Justice Department will look at IBM's microcode policies, which CDLA claims give IBM too much control over modifications that owners make to equipment.

CDLA President Kenneth Bouldin said he hopes the Justice Department will investigate these policies to see if they conform to the Consent Decree of 1956. A Justice Department spokeswoman said the complaint is under review and declined to comment further.

The association filed its paper at the Justice Department after direct negotiations with IBM failed late last year, Bouldin said.

At issue, according to Bouldin, is the inclusion of IBM 3090 system parameters, or reconfiguration data, as part of the system's microcode, which IBM is now designating as licensed internal code.

That designation makes the 3090 microcode, including the system parameters, IBM's property. As a result, system owners have to get approval from IBM for any changes and pay for those modifications.

Modifications need to be made to the system parameters when a system is reconfigured to alert the CPU that it will have a different number of channels or memory or direct-access storage device. Since reconfiguration is a critical part of a reseller's business, CDLA views IBM's actions as a highly aggressive competitive move to grab more leasing business for itself.

An IBM spokesman last week denied that IBM had grown more restrictive.

"Copyright law and IBM li-

Continued on page 94

Leaders' hardware earnings go soft

BY ALAN J. RYAN
CW STAFF

One industry analyst has said the incentive to buy will be reduced by user confusion stemming from too many alternatives to consider. As if to drive home that point, profits in the hardware industry during the most recently ended quarter were meager.

Following that trend was **Apple Computer, Inc.**, which recorded a 44% hike in net sales for its second quarter ending March 31 but a 29% decline in earnings compared with the same quarter a year ago, due mainly to overstocking of memory chips. Sales for the period were $1.25 billion, compared with $867.2 million in the year-ago period. Income for the quarter was $56.4 million, a drop from the $79.7 million earned in the same period last year.

Apple Chairman and Chief Executive Officer John Sculley said the company has taken "appropriate actions during the quarter to control expenses throughout Apple while continuing to invest for the future."

Companies that experienced a decline in both sales and earnings include the following:

- Alpharetta, Ga.-based **Digital Communications Associates, Inc.** (DCA) reported a drop in both its earnings and sales for its third quarter over the same quarter the prior year. For the period, DCA recorded sales of $50.3 million, compared with $59.2 million a year ago. Earnings for the period were $7.3 million, or 49 cents per share, compared with $12.5 million, or 82 cents a share a year ago. Part of the decrease stemmed from the losses incurred by Digital Transmission Systems, Inc., which DCA acquired in December 1988.
- **NCR Corp.** joined the list of those reporting income and sales below the levels of last year. The Dayton, Ohio-based manufacturer of business information processing systems had an 18% decline in earnings from $74.1 million a year ago to $61.1 million in the first quarter of the current fiscal year. Earnings per share were down 13% at 77 cents, compared with 88 cents per share a year earlier. Sales declined 2% to $1.25 billion, compared with $1.28 billion for the year-ago period.

For other companies, sales were up, but earnings declined:

- Rigid magnetic disk drive manufacturer **Seagate Technology, Inc.** reported a 7% decrease in its earnings for the three months ended March 31. Income for the quarter dropped from $23.2 million, or 46 cents per share a year ago, to $21.5 million, or 42 cents per share for the latest earnings period. Sales for the period increased 5% from the comparable period a year ago, when sales were $339.1 million, to $357.6 million in the latest period.
- Mountain View, Calif.-based **Silicon Graphics, Inc.** reported sales of $68.3 million for its quarter ended March 31, an increase of 63% over sales of $42 million reported in the same quarter last year. Earnings for the period declined slightly to $3.1 million, or 18 cents per share, compared with income of $3.4 million, or 25 cents per share in the like period for the prior fiscal year.

Among those posting an increase in sales were the following:

- **Intergraph Corp.** last week reported an increase in earnings and sales for its quarter ended March 31. For the period, sales rose to $185.7 million, and earnings climbed to $19.5 million, with per-share earnings at 35 cents. In the like quarter a year ago, Intergraph reported earnings of 30 cents, or $17.1 million, on sales of $174.7 million.
- **Automatic Data Processing, Inc.** reported record revenue and earnings in its third quarter ended March 31. Earnings per share grew 15% to 76 cents from 66 cents a year ago. Earnings increased 10% to $56.2 million on sales of $454 million. For the same period last year, earnings were $51.2 million on sales of $417.9 million.
- **Intel Corp.** recorded only a slight rise in earnings to $97 million from the $94 million it reported in the same quarter a year ago. Intel recorded revenue for the period of $713 million, up from $636 million reported in the company's first quarter a year ago. The latest earnings period ended April 1.
- **Motorola, Inc.** said its sales rose to $2.17 billion, up 11% from $1.96 billion in the first quarter of 1988. Meanwhile, earnings were $123 million, or 95 cents per share, compared with $114 million, or 88 cents per share, a year ago.
- Also landing on the high side is **MCI Communications Corp.**, which reported that its sales and income for the first quarter of 1989 ended March 31 established all-time records for the company. Sales for the three-month period were $1.5 billion, an increase of 33% over the $1.13 billion reported in the same quarter a year ago. Earnings for the quarter more than doubled to $128 million, or 51 cents per share, compared with income of $58 million, or 20 cents per share, a year earlier.
- Portland, Ore.-based **Sequent Computer Systems, Inc.** reported sales of $26.1 million for its first quarter ended April 1. That figure represents an 83% increase over the $14.2 million in sales for the first quarter in 1988. Income for the period was $2.4 million, or 27 cents per share, compared with $1.1 million, or 14 cents per share, in the corresponding 1988 quarter.

Andersen fills top two slots after major reorganization

BY ELLIS BOOKER
CW STAFF

Following months of major restructuring of its worldwide operations, Arthur Andersen & Co. earlier this month named two men to head up its accounting, audit and tax business unit and its consulting unit.

Shaheen *is now Andersen's managing partner-consulting*

George T. Shaheen, formerly managing partner of the Americas consulting practice, was made managing partner-consulting. Richard L. Measelle, formerly the managing partner-accounting and audit, was named managing partner of the newly combined accounting, audit/tax business unit.

"We are now the undisputed leader in systems integration and information consulting, but we cannot stand still," Shaheen claimed, adding that major hardware manufacturers now compete for the information technology marketplace.

Shaheen also said the consulting group would sustain its activities in three new areas: strategic services, change management and facility management.

Andersen's 40-year-old consulting organization, which has grown at 25% per year on average and 31% in the past fiscal year, contributed 40% of Andersen's $2.8 billion 1988 revenue.

"With our house back in order, we at Arthur Andersen are now back to business," said Lawrence A. Weinbach, managing partner and chief executive officer of The Arthur Andersen Worldwide Organization.

Weinbach said his goal was to make Andersen the premier professional service organization in the world and "achieve a number one, two or three" position in every market.

Dispelling questions about discontent among Andersen's 2,200 partners, Weinbach reported that 89% of the partners had voted in favor of the restructuring plan.

"This organization is back to work," he said. "We are going to have our attention focused externally on the marketplace, and the first people who are going to see this change in attention are going to be our competitors in all of our practices."

Lotus first-quarter income takes a nosedive

BY ALAN J. RYAN
CW STAFF

While its customers await the delayed shipment of its 1-2-3 Release 3.0 spreadsheet, **Lotus Development Corp.** last week reported a disappointing drop in income for its first quarter ended April 1.

For the period, Lotus announced sales of $120 million, compared with the previous year's first-quarter sales of $117.3 million. Income for the period was $5.3 million, or 13 cents per share, vs. earnings of $18.3 million, or 40 cents per share, in the first quarter last year. The company blamed the decrease in earnings partly on a new distribution strategy.

As Lotus fell, Redmond, Wash.-based **Microsoft Corp.** reported sales of $197 million for its third quarter, an increase of 22% over the $161.8 million for the same period a year ago. Income for the latest quarter rose 10% to $41.1 million, or 73 cents per share, from the $37.3 million, or 67 cents per share, for the same period last year.

Ashton-Tate Corp. reported an increase in sales but just a slight increase in earnings for its first quarter ended March 31. Chairman Edward Esber Jr. attributed the flat earnings to the company's investment in marketing and filling out its sales force, which he said will result in increased market share in the second half of 1989. Esber said "it would be hard to catch up to Microsoft any time soon," adding that Lotus looks in sight.

For the period, the Torrance, Calif.-based business applications marketer recorded income of $11.5 million, or 44 cents per share, compared with earnings of $11.1 million, or 43 cents per share, for the same period a year ago. Sales for the period climbed 24% to reach $89.8 million, compared with the $72.4 million reported a year earlier. Sales of Ashton-Tate products in the European market accounted for much of the increase, Esber said.

Esber noted that flat earnings were reported in many companies throughout the industry during the last quarter. "To some degree, all of the announcements and alliances have confused customers a bit," he said. "To some degree, they have postponed purchases." Esber said sales of the company's Dbase IV product were healthy for the quarter and that its delayed release had not impacted sales.

Elsewhere in the software industry, **Computer Task Group, Inc.** in Buffalo, N.Y., also saw its earnings dip in its first quarter. The company announced income of $1.5 million, or 18 cents per share, compared with the 1988 first-quarter income of $1.7 million, or 21 cents per share. Sales climbed 16.2%, from $50.4 million in 1988 to $58.6 million in the last quarter.

Electronic Data Systems Corp. posted a 12% increase in income and a 15% boost in sales for its first quarter ended March 31. The company announced income of $100 million, up from the $89.1 million recorded for the same quarter last year. Sales increased to $1.29 billion from the $1.12 billion reported a year ago. Earnings per share climbed from 73 to 82 cents.

On the communications front, Redwood City, Calif.-based **Network Equipment Technologies, Inc.** reported a 51% increase in sales and a 7% increase in income for its fiscal year ended March 31, compared with the previous fiscal year. Sales and earnings for the year were $136.7 million and $16 million, respectively, or $1.15 per share. For the previous year, sales and earnings were $90.6 million and $15 million, respectively, or $1.09 per share.

Ameritech, the Chicago-based parent of the operating companies that serve Illinois, Indiana, Michigan, Ohio and Wisconsin, reported income for the quarter ended March 31 of $300.8 million, up 1.9% over the same period a year ago. Earnings per share were $1.12, a 3.7% increase over earnings per share of $1.08 in the first quarter of 1988. Sales for the quarter rose 3.5% to $2.5 billion, compared with $2.4 billion a year ago.

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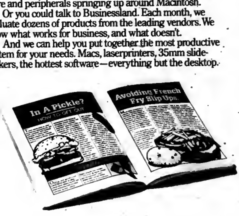

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BUSINESSLAND.

Datacom rivals muscle in on fed favorites

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — Data communications vendors and systems integrators are lobbying to overturn a 1988 law that effectively requires federal agencies to obtain all data networks from AT&T and U.S. Sprint Communications Co., both winners of the government's centralized FTS-2000 network contract.

The competitors are protesting legislative language, passed by the U.S. Congress last September, that made it mandatory for federal agencies to use the FTS-2000 network for voice, data and video traffic. To implement the law, the U.S. General Services Administration (GSA) has killed eight agency procurements for data networks and amended several others to force agencies onto FTS-2000 [CW, Feb. 27].

> IF THE GSA's aggressive implementation of the law prevails, "the outlook for data communications companies serving the federal marketplace is grim."
>
> ANDY PRICE
> TYMNET

The result, critics said, is a "two-company oligopoly" that harms other vendors, competition and innovation for the 10-year life of the FTS-2000 contract.

GSA officials have explained that they are merely following orders from Congress, which made FTS-2000 mandatory to ensure that the government obtains the largest volume discount possible.

If the GSA's aggressive implementation of the law prevails, "the outlook for data communications companies serving the federal marketplace, and Tymnet in particular, is grim," commented Andy Price, director of federal operations at Tymnet, a subsidiary of McDonnell Douglas Network Systems Co. in Vienna, Va.

In addition to behind-the-scenes discussions with members of Congress, the lobbying campaign is being waged by several vendors on different fronts:

- Adapso, the computer software and services industry association, testified at a recent congressional hearing that it supports the mandate for switched-voice services but opposes it for data and video services. It said the mandate for data services was not included in the GSA bid solicitation but was added retroactively by Congress.
- Tymnet's Price, in a position paper, said the bidding strategies of Tymnet and others would have been dramatically different had they known that FTS-2000 would be mandatory for data communications. Also, he said, the FTS-2000 vendors will be insulated from price and technical competitive pressures from outside vendors.
- A letter from MCI Communications Corp., the big loser in the FTS-2000 procurement, urged the GSA to keep the exceptions process in its FTS-2000 regulations so that agencies with unique requirements can acquire appropriate networks.
- Computer Sciences Corp., in a protest filed with the GSA Board of Contract Appeals, complained about the U.S. Department of Justice's decision to scrap a network procurement for FTS-2000.

"What caught everybody by surprise was that GSA moved so quickly" to force data traffic onto FTS-2000, said Warren H. Suss, president of Warren H. Suss Associates, a federal-market consulting firm in Jenkintown, Pa.

He said most vendors had expected the GSA to take about three years to get the voice side of FTS-2000 up and running and then turn its attention to the data side. "During that period, agencies had planned to put in place major data communications networks that would be difficult to disassemble," Suss said.

The federal mandate is relatively good news for U.S. Sprint's Telenet Communications Corp., which will provide the data network for U.S. Sprint's portion of FTS-2000, known as Network B. Because of the way that the GSA apportioned agencies to Networks A and B, "Telenet is losing some Network A customers and wants to make up that ground," Suss said.

MCI disputes AT&T deal

The rates AT&T is offering the federal government for the FTS-2000 contract are illegally low, archrival MCI Communications Corp. charged recently.

AT&T's below-cost rates are "unlawfully preferential and discriminatory," MCI said in a complaint filed with the Federal Communications Commission. MCI said AT&T stands to lose $12 million on FTS-2000 services in 1991, reflecting AT&T's "decision to win the business at any price."

An AT&T spokeswoman denied that AT&T engaged in any predatory pricing, which is prohibited by the Communications Act of 1934.

MCI did not win a piece of the huge federal contract, which was awarded to AT&T and U.S. Sprint last year. The FCC recently ruled that AT&T, as a regulated carrier, must disclose its FTS-2000 rates in Tariff 16 [CW, March 6].

MITCH BETTS

Bartolik

CONTINUED FROM PAGE 89

but making little if any money. It is certainly ripe for the picking by someone willing to take a big gamble.

Wang is Wang, and given that the good doctor has locked up voting control under a special class of stock owned by the family, the firm is technically immune to a raid. But it seems clear that it is rethinking its strategic moves of the past couple of years; the plug was pulled on the relatively new microsystems division after it was bogged down by internecine turf-grabbing warfare that young Fred seemed unwilling or unable to rein in.

So what? you say; there's always DEC. Ken Olsen's company is still going strong, despite recent talk of setbacks, but it is also still overly dependent on the magical touch of the founder and prone to the highs and lows of his single-minded brilliance. Where is the heir apparent who has earned his spurs with tactical wins over competitors? That person is not apparent to anyone, and neither is DEC's long-term future.

It was start-up city along the highway just a few years ago, as investors clambered to buy into the next Lotus. But Lotus and Stratus are about the only companies of recent years that measure up to those benchmarks of success. It is still unclear whether Lotus will ever grow beyond 1-2-3, and Stratus is riding a niche — fault-tolerance — that is increasingly being pulled into the mainstream.

> THIS EAST COAST pocket of innovation is bereft of the next Ken Olsen or Mitch Kapor.

The sad fact is that this East Coast pocket of innovation is bereft of the next Ken Olsen or Mitch Kapor. Start-ups still come and go, but there is no magic man riding a good idea to the market top.

Much like the Massachusetts economy, the Route 128 region seems to be aging — still vital enough to make a show of it but not fast enough to kick anything into high gear. Creators need that rush of adrenalin that comes from racing on the edge of innovation, but the 128 area seems more inclined to Librium.

It's an unhappy turn of events, because the 128 vs. Silicon Valley competition has carried the U.S. technology industry out of the mainframe doldrums. The Valley is riding the success of marketing acumen and standardized systems. Companies such as Sun tapped into user demand for equipment that does not lock them into the travails of one vendor. But you have to wonder how much innovation the standards craze can foster.

It's an oversimplification, but the Silicon Valley brain trust is the best in the world at pushing technology to the limits. The Route 128 area, nourished by the almost unending halls of academia in Boston and Cambridge, should flourish in the act of bringing technology out of the research laboratory and turning it into commercial computing tools. That would provide a good national balance, but right now, things are tilted.

Bartolik is *Computerworld's* news editor.

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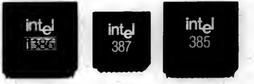

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Microcode issue

CONTINUED FROM PAGE 89

cense terms place certain limitations on what may be done with IBM's microcode," the IBM spokesman said. "This, however, in no way inhibits reconfiguration of IBM machines. In fact, IBM supplies replacement licensed internal code to facilitate and support reconfiguration of IBM 3090s."

But Bouldin claimed that prior to mid-1988, when IBM designated the microcode as licensed internal code, owners had various options when it came to making changes to system parameters. They could opt for IBM to handle it, they could do it themselves, or they could go to a reconfiguration specialist.

With the new designation of 3090 system parameter microcode as licensed internal code, IBM killed the options a system owner had, Bouldin said. IBM is now the only one that can make modifications, Bouldin added.

> "I'M CONFIDENT that the government will say [IBM's] microcode policies are not good."
>
> KENNETH BOULDIN
> CDLA PRESIDENT

Kenneth Pontikes, president of Comdisco, Inc. and a longtime CDLA member, said his firm and other leasing companies only want access to the system parameters, which does not have to be part of the copyrighted microcode. "Now, we have to go to them for anything, and that's too restrictive," he said.

Bouldin said he expects to hear soon from the Justice Department. "I'm confident that the government will say their microcode policies are not good," he said.

But others are not so sure. "Justice could take them to court, but I don't think they're going to," said Thomas Donovan, director of investment banking services at Technology Investment Corp., a division of International Data Corp. "Justice would negotiate [with IBM] before that."

IN BRIEF

Liu goes (far) East

Dr. Leonard Liu, until recently general manager of IBM's Santa Teresa Laboratory, last week was named president of Taiwan's The Acer Group and chairman and chief executive officer of Acer America Corp. Liu spent 20 years at IBM, culminating in his assignment as head of one of IBM's top software development operations.

. . . .

Fading picture

Dest Corp., a manufacturer of print scanners and facsimile boards, filed for protection from its creditors under Chapter 11 of the U.S. Bankruptcy Act. In a court filing, Dest claimed to have $18 million in assets and a burden of $16.8 million in debt.

. . . .

Pac Man wars, the next generation

Tengen, Inc., a subsidiary of Atari Games Corp., last week sued Nintendo of America and its Japanese parent. In the latest escalation of the bitter video game wars, Tengen and Atari Games (not affiliated with Atari Corp.) filed suit in federal court seeking to prevent Nintendo from introducing a version of a video game, Tetris, to which Tengen claims exclusive marketing rights.

. . . .

Foreign affairs

Ing. C. Olivetti & Co. linked an agreement last week to distribute in Europe the IBM-compatible storage and memory products produced by IPL Systems, Inc., in which Olivetti acquired a 25% interest in 1981.

. . . .

Who's in the chips?

The latest Semiconductor Industry Association report on bookings and billings scores March as the best ever. Shipments reportedly were 12.1% higher than the previous all-time high set in September 1988, while average monthly orders for the three-month period ended in March were 4.4% greater than the all-time high set in June of last year.

. . . .

Long Island sounds

Venture capital firm Rand Capital Corp. last week announced the formation of Rand Systems, Inc. in Hauppauge, N.Y. The start-up absorbs the staff and products of Software Performance Group, Inc. and its flagship product, Service Manager. The company will build on that product, designed for service contracting and the home improvement industry, for use on Unix-based supermicrocomputers and minicomputers.

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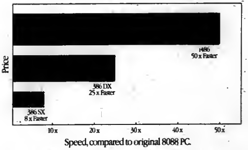

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COMPUTER CAREERS

ACP/TPF spreads its wings

New applications and overseas airlines generate opportunities

BY SHERYL KAY
SPECIAL TO CW

In recent years, American Airlines has found it necessary to broaden its search for programmers skilled in Airline Control Program/Transaction Processing Facility (ACP/TPF).

"We've gone as far away as Singapore and Pakistan" to find people, saya Fred Klich, manager of Sabre applications at Sabre Computer Services, the reservation arm of American Airlines in Dallas.

After 30 years, ACP/TPF, an operating system environment developed jointly by IBM and American in the 1950s, is still widely used for high-volume transaction processing.

As a career niche, TPF, as IBM now calls it, continues to offer technical challenge and good pay, presenting an attractive career opportunity for the right kind of information systems professional.

Designed for use in an airline reservation system, TPF is now used for a variety of applications, including Walgreen Co.'s pharmaceutical records network, the New York City Police Department'a system for tracking patrol cars and American Express Co.'a credit authorization network.

"There's a transaction processing explosion worldwide," says Bob Cohen, director of TPF Systems at IBM in Danbury, Conn. "TPF is really at the leading edge of satisfying the requirements for this explosion."

TPF flurries

Dianne Edmondson, president of ACP, Inc., a recruiting organization in Denton, Texas, reports "a flurry of TPF activity overseas, particularly in Europe." Development of two joint airline reservation systems in Europe is fueling demand there, according to Klich.

There are a number of attractions to working with TPF, according to Wolly Wilson, vice-president of Transaction Services Systems at American Express in Phoenix.

"A key element is that TPF applications are very visible and critical to the business — the front end or the lifeline to the company," Wilson says. "You can see the direct benefit to the company of the work that you do, and you end up learning a lot about the business itself."

On the technical side, IS professionals are attracted to TPF for the challenge of maintaining operations 24 hours a day, seven days a week. Another draw is becoming familiar with things such as file structures, communications protocols and recovery techniques.

Coding at the operating system level presents exciting challenges to David Busch, a consulting engineer at Covia Corp., the Denver-based partnership that provides reservation services for United Airlines.

> "THERE'S A transaction processing explosion worldwide. TPF is really at the leading edge of satisfying the requirements for this explosion."
>
> BOB COHEN
> IBM

Busch says his 18 years of working with TPF have broadened his technical background. "TPF gave me a strong understanding of computer systems in general by working at a low level of assembler programming," he says. "An individual can use this very fundamental background in computer concepts to build upon later in his career and apply it to other areas, such as computer planning or micro technology."

In addition, TPF professionals often get exposure to leading-edge technologies. "Here at American Express, our TPF team works with the latest point-of-sale equipment and associated applications," Wilson says.

TPF groups may also deal with leading-edge automated teller machines, expert systems, productivity tools and fault-tolerant systems.

People who hire TPF professionals place a premium on experience with the technology. "In the TPF environment, an inexperienced programmer can do more harm than in most other large mainframe shops," Wilson says. "There have been situations where inexperienced programmers have caused major outages to the most important system his company has."

Major users must develop some TPF professionals through training. People best suited for the training will have a good assembler background combined with knowledge of real-time systems, Wilson says. Some TPF shops now use Sabretalk, which is a higher level development language. Experience with PL/I would be more applicable at those organizations, according to Wilson.

Tony Fahmie, a technical recruiter at Merit Systems, Inc., a project management and software services firm based in Tyoy, Mich., says companies find that the best way to teach TPF is to put a trainee to work alongside someone who has been using it for a few years.

Roadwork

Unless planning to spend an entire career with one employer, a TPF developer should be willing to move. In some parts of the country, the local TPF community consists of one shop, Edmondson says.

"Unless you happen to live in the Northeast corridor or in the Far West, you're going to have to relocate if you want to leave your present employer" and stay with TPF, she says.

People willing to invest the time and effort required for learning TPF will reap financial rewards as well as face technical challenge. For professionals with one to three years of TPF experience, salaries range up to $36,000 per year, according to Edmondson. With three to six years of experience, salaries reach $50,000. People with more than six years of TPF experience command salaries of more than $65,000 a year. International positions offer substantially more money to offset hardships encountered in living overseas.

Kay is a Tampa, Fla.-based business consultant and free-lance writer specializing in emerging technologies and human resources.

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SYSTEMS ANALYST - Support design & development of specifications & partake in software development. Require Bachelor's or equivalent in Computer Science (9 months experience - 1 year professional experience) & 4 years experience including IMS DB/DC, CICS, PL/1, DL/1, TSO/SPF or CMS/SPF. Salary: $36,000 per annum. Job Location: Phoenix, AZ. **Resume to: CW-83190, Computerworld, Box 9171, Framingham, MA 01701-9171**

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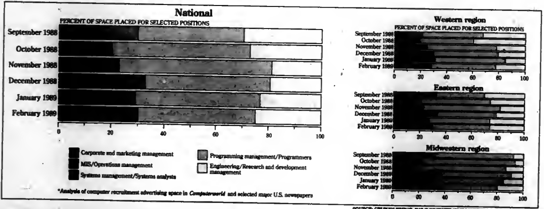
CAREER INDEX

Computer recruitment advertising activity*



*Analysis of computer recruitment advertising space in *Computerworld* and selected major U.S. newspapers

SOURCE: CW PUBLISHING, INC.'S RECRUITMENT MARKET RESEARCH DATABASE
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This position requires a minimum of 3 years experience in MVS/XA systems programming with some CICS background. Experience in installation and support of ACF2 or other security packages would be helpful.

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- Familiar with environments listed below

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CONTINUUM

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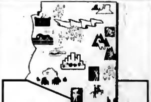

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- Detailed working knowledge of MVS/SP internals and architecture
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Applicants should have a Bachelors degree in Computer Science, Math or Business Administration and four years experience in applications development utilizing IBM mainframes. Experience working with computer-based Security Systems is also desirable. Applicants should also have above average aptitude and abilities in user relations, written and oral communications and project management. Salary depending on experience $28,281 - $36,352.

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Qualifications of this position are a Bachelors Degree in Data Processing and two years experience in Systems development. Experience in the design and implementation of relational data base applications using DB2 and computer applications using ISPF/PDF, FOCUS, and SAS in the MVS/TSO or VM/CMS environment is required. Salary depending on experience is $25,488 - $31,860.

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Ron Alford

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80 Manufacturer of Computers Computer-Related Systems or Peripherals
85 Computer & DP Services including Software/Service Bureau Time Sharing/Consulting
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22 Dir Mgr Supv of Operations Planning Adm Services
23 Dir Mgr Supv Analyst of Systems
31 Dir Mgr Supv of Programming
32 Programmer Methods Analyst
35 Dir Mgr Supv OA/WP
38 Data Comm Network Systems Mgr

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90 Others
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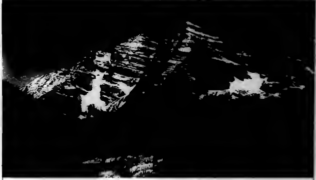

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MARKETPLACE

Used 3090s are hard to find

BY MARY JAKUBOWICZ
IDC FINANCIAL SERVICES CORP

Earlier this year, IDC Financial Services Corp. began to hear rumblings about delays in shipments of IBM's 3090 S mainframes. In late January and early February, several third-party contacts noted that many users were having difficulty getting timely delivery of 3090 S boxes and 3090 E-to-3090 S upgrades.

In many instances, users were forced to wait several months for their processing complexes, and in some cases they waited up to nine months for an E-to-S upgrade.

In early March, IBM finally announced that it was experiencing logic chip problems with its current line of 3090 S models, particularly with E-to-S upgrades. Therefore, the firm had difficulty delivering the machines and upgrades within a reasonable time frame.

At the same time, IBM stated that it had solved the chip yield problem and earnings would not be affected for the year. However, since then, IBM has admitted that the chip problem will hurt its earnings for the first quarter and the year.

As a result of IBM's logic chip problems, the 3090 E secondary market has begun to dry up. According to sources, the used E market, which was ample in the fourth quarter last year and early January this year, has now become limited. Apparently, end users who would have swapped their existing 3090 E systems onto the secondary market for the newer S models have been forced to keep their E processors and either upgrade to a higher E model for the interim or wait several months for delivery of a 3090 S.

Tough to get

According to third-party market sources, the 3090 Model 400E is a tough machine to get ahold of in the secondary marketplace. In fact, some IDC Financial Services contacts indicate that dealers in the used market are currently short two machines. Moreover, third-party market dealers who did not foresee this shortage of E models when making commitments to 400E deals are now stuck without any machines and will be forced to seek alternate routes to satisfy end-user capacity requirements.

Current IDC Financial Services research has found that the supply of the 3090 Model 200E is also tight. Third-party contacts indicate that the 200E is the popular entry point into the 3090 line and therefore demand is very strong for that model. In fact, it is so strong that in a few instances dealers have begun downgrading 400Es to 200Es and 200E-to-400E upgrades in order to satisfy end-user demand for 200Es.

However, the more popular route that the third-party community takes to get a 200E is to downgrade a Model 300E processor, which was upgraded from a 200 machine into a 200E machine and 200E-to-300E upgrade. This has caused several used 200E-to-300E upgrades to appear on the secondary market.

As far as recertification on the downgraded machines is concerned, IBM has had no problem with this procedure thus far. When dealers downgrade their systems into a lower model and an upgrade, they are not splitting the original machine into two true processors. Therefore there is no need for an additional copy of the processor microcode. All that is needed is a microcode refresh. IBM will therefore certify the machines for maintenance without a problem.

In addition, third-party dealers have found no problem with serial number sensitivity. The true system that results from the downgrade will retain the serial number of the original processor, and the resulting upgrade will take on the serial number of the machine to which it is eventually attached.

Sources indicate that the 3090 Models 500E and 600E are not very attractive on the secondary market. Dealers do not like to warehouse these processors, as their upgrade paths are limited. In addition, demand is not as great for these systems.

However, dealers have found a way to clear 600E models from their inventory. What they are doing is downgrading a 600E into a 400E and a 400E-to-600E upgrade, which is essentially two 200E-to-300E upgrades. This allows dealers to sell the 400E on the secondary market as well as upgrade a 400E to a 600E or upgrade two 200E machines to 300Es. Either way, dealers avoid the hassle of trying to get rid of their 600E whole.

For more information, contact IDC Financial Services Corp.'s Terri LeBlanc at 508-872-8200.

Used prices

March fair market values of IBM 3090 E mainframes as a percent of list price

Model	*Configured list price*	*Fair market value*	
		Retail	*Wholesale*
3090 Model 600E 128M bytes internal memory, 64 channels	$11.1 million	65%	63%
3090 Model 400E 128M bytes internal memory, 64 channels	$8.5 million	68%	65%
3090 Model 300E 64M bytes internal memory, 32 channels	$6.1 million	80%	63%
3090 Model 200E 64M bytes internal memory, 32 channels	$4.6 million	68%	65%

CW CHART: FRANK C. O'CONNELL

Index

Used/Lease/Rent

The BoCoEx index on used computers

Closing prices report for the week ending April 14, 1989

	Closing price	Recent high	Recent low
IBM PC Model 076	$700	$800	$550
XT Model 086	$1,025	$1,150	$900
XT Model 089	$1,250	$1,400	$950
AT Model 099	$1,775	$2,000	$1,525
AT Model 239	$1,800	$2,100	$1,775
AT Model 339	$2,100	$2,375	$1,800
PS/2 Model 60	$3,075	$3,100	$2,500
PS/2 Model 80	$3,850	$4,100	$3,100
Compaq Portable I	$650	$750	$550
Portable II	$1,900	$2,100	$1,750
Portable III	$2,650	$2,950	$2,400
Portable 286	$1,700	$1,975	$1,675
Plus	$1,000	$1,200	$900
Deskpro 286	$2,100	$2,350	$1,800
Deskpro 386	$2,800	$2,900	$2,500
Apple Macintosh 512	$625	$775	$550
512E	$825	$975	$600
Plus	$1,000	$1,100	$950
II	$4,125	$4,450	$3,425
Apple Laserwriter II-NTX	$4,200	$4,200	$4,000
HP Laserjet Series II	$1,350	$1,400	$1,300

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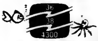

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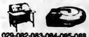

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MISSISSIPPI CENTRAL DATA PROCESSING AUTHORITY

Sealed proposals will be received by the CDPA, 301 N. Lamar St., 301 Building, Suite 508, Jackson, MS 39201 for the following equipment and services:

Request for Proposal No. 1610, due Thursday, May 4, 1989 at 3:30 p.m. for the acquisition of a microcomputer LAN-based Payroll/Personnel software system for the Human Resources Division of the MISSISSIPPI DEPARTMENT OF PUBLIC WELFARE.

Request for Proposal No. [illegible], due Monday, May 8, 1989 at 3:30 p.m. for the acquisition of a telephone-based registration system for the UNIVERSITY OF SOUTHERN MISSISSIPPI, Computing Center.

Request for Proposal No. [illegible], due Tuesday, May 23, 1989 at 3:30 p.m. for the acquisition of a distributed processor to support the MAVERICS system and to address other departmental data processing needs at the MISSISSIPPI DEPARTMENT OF PUBLIC WELFARE.

Request for Proposal No. [illegible], due Friday, May 5, 1989 at 3:30 p.m. for the acquisition of a minicomputer-based system running the VMS operating system for the Department of Medicinal Chemistry at the UNIVERSITY OF MISSISSIPPI.

Request for Proposal No. [illegible], due Friday, May 5, 1989 at 3:30 p.m. for the acquisition of two minicomputer-based systems as upgrades to an existing MicroVax II computer for the Electrical Engineering Department of the UNIVERSITY OF MISSISSIPPI.

Detailed specifications may be obtained from the CDPA office. The CDPA reserves the right to reject any and all bids and proposals and to waive informalities.

Patsy Stanley @ (601) [illegible]

METROPOLITAN TRANSPORTATION AUTHORITY NOTICE is hereby given that the Metropolitan Transportation Authority will receive sealed bids for the sale by it of the articles indicated below, on which date they will be publicly opened and read at the indicated time at the Authority's offices at 347 Madison Avenue, New York, N.Y. (5th floor). Bids must be submitted on the inquiry form provided by the Authority. Copies of such forms and specifications may be secured from Ms. Angie [illegible], Secretary, Division of Procurement Services, Metropolitan Transportation Authority, 347 Madison Avenue, New York, N.Y. 10017.

INQUIRY	DATE	TIME
4-01-89146-0	5/18/89	3PM

FOR: [illegible], Double and Single Sided Tape Racks, Storage tray (30-Cartridge Capacity)

Preparing a training request

A document can help generate complete and comparable proposals

BY NAOMI KARTEN
SPECIAL TO CW

Training departments and information centers are understaffed, yet the demand for technical and end-user training remains heavy. Fortunately, training vendors are plentiful. Unfortunately, high-quality training from these firms is not a sure thing.

When using training vendors extensively for support of critical needs, it is important to make a careful selection — especially when expenditures are large.

The way to make do is through a request for proposal (RFP). An RFP allows an organization to methodically gather and objectively review vendors' qualifications. The RFP reduces personal bias and ensures that important factors are clearly defined before the selection process begins.

To identify training vendors to which the RFP will be sent, companies can refer to monthly data training publications or directories such as the annual *Data Training Buyer's Guide*, published by Weingarten Publications, Inc. in Boston. Information may also be available from professional associations such as the American Society for Training and Development, the National Society for Performance and Instruction or local groups.

Data processing training professionals in other organizations can also offer valuable advice about whom to consider and, perhaps more important, whom to avoid. The resulting list can be streamlined by writing to potential candidates, describing the service required and asking if the candidates are interested in the RFP.

Don't chance it

There are no absolutes about how an RFP should be structured, although governmental agencies and certain organizations may require a specific form and format. It is best not to leave anything to chance; the need for any information from the vendors should be spelled out. RFPs for training services should generally include the following sections:

- Opening section: This part explains the purpose and includes a general description of the corporate environment, training goals and the expected results of selecting a training vendor.
- Administration section: This portion describes the required format, contents and organization of vendors' proposals. Items include the proposal deadline, a list of the major review criteria and requirements for providing client references. It should also state the period following the due date during which the vendor is expected to hold rates and services constant.
- Training specifications: This section explains the orgznization's computer environment, the products for which training is sought and the types of training desired. It requires the vendor to describe its training services in detail, including the size of the firm, the instructor's background, their experience with the products or technologies in question and their method of keeping up with product enhancements and new releases.

The RFP will typically request training formata, course outlines, descriptions of course materials and training evaluation techniques. It might ask about the vendor's willingness to customize training to suit organizational needs.

- Business section: This segment solicits information about the vendor's history, financial stability and ability to deliver. It requests information about such items as training costs, discounts, payment schedules, cancellation policies and trainer substitution policies.
- Legal section: This section contains information on ownership of materials, confidentiality agreements, liabilities and special considerations such as terms for tax-exempt organizations or government agencies. The RFP should require vendors to submit copies of their standard contract for review by the organization's legal department.

> WHEN USING training vendors extensively for support of critical needs, it is important to make a careful selection — especially when expenditures are large.

For each section, the requesting organization should prepare a list of requirements that fits its specific training and organizational needs. The RFP should state that the organization may select more than one vendor and that it reserves the right to accept or reject any or all responses.

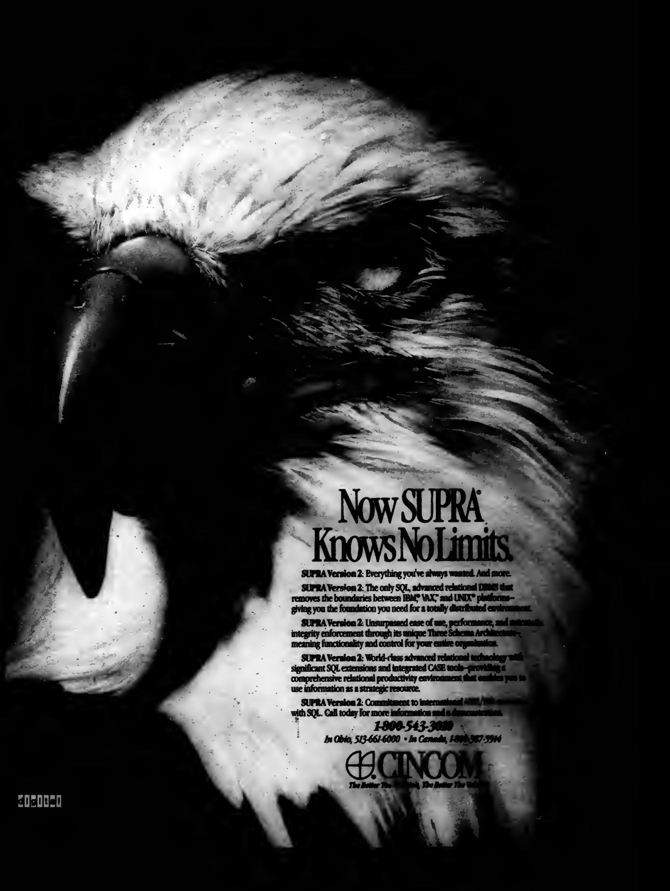
If the RFP is likely to contain proprietary information about the company, it is wise to require prospective vendors to agree to protect the confidentiality of the information by signing a nondisclosure agreement before receiving the RFP.

It is also a good idea to solicit input from representatives of relevant areas in the company. These may include DP departments and the DP training department for technical training as well as the information center and user departments for end-user training.

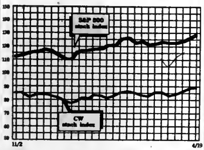
Before the RFP is distributed, a senior MIS manager and a representative of the legal department should review and approve it. Once complete, the RFP can serve as a model for others that may be sent out subsequently.

Before issuing the RFP, the organization should prepare a list of criteria that will be used to evaluate the proposals. Doing so before issuing the RFP helps to ensure that nothing has fallen between the cracks and that all necessary information about prospective training firms is being solicited.

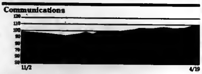
Karten is president of Karten Associates in Randolph, Mass., and editor of the monthly newsletter "Managing End-User Computing."

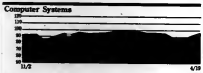


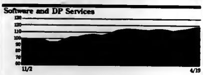
STOCK TRADING INDEX



Indexes	*Last Week*	*This Week*
Communications	108.9	109.1
Computer Systems	93.4	95.6
Software & DP Services	118.0	119.6
Semiconductors	56.7	58.3
Peripherals & Subsystems	82.1	81.1
Leasing Companies	114.1	116.3
Composite Index	88.7	89.8
S&P 500 Index	125.8	129.0







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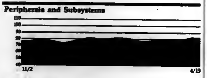
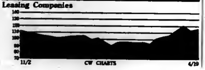




Computerworld Stock Trading Summary

CLOSING PRICES WEDNESDAY, APRIL 19, 1989

Communications and Network Services

EXCH		52-WEEK RANGE (1)		PRICE CLOSE APRIL 19, 1989	WEEK NET CHNGE	WEEK PCT CHNGE
N	AMERICAN INFO TECHS CORP	58	42	53.875	2.6	5.1
Q	ANDREW CORP	22	13	18.75	0.3	1.4
Q	ARTEL COMM CORP	5	1	4.188	-0.8	-15.2
N	AT&T	34	24	33.5	2.5	7.6
Q	AVANT GARDE COMP INC	3	0	0.406	-0.1	-18.8
Q	AVANTEK INC	7	4	6.25	-0.5	-6.7
N	AYDIN CORP	18	13	15	-0.8	-4.8
N	BELL ATLANTIC CORP	80	64	75.25	3.5	4.9
N	BELLSOUTH CORP	44	36	42.875	1.3	3.0
Q	COMPRESSION LABS INC	6	3	5	-0.4	-7.0
Q	COMPUTER NETWORK TECH	2	1	1.501	0.1	6.7
Q	CONTEL CORP	57	21	54.875	2.1	4.0
Q	DATA SWITCH CORP	8	5	6	0.0	0.0
Q	DIGITAL COMM ASSOC	28	17	20.875	0.6	3.1
Q	DYNATECH CORP	24	17	17.5	-0.8	-4.1
Q	FIBRONICS INTERNATIONAL INC	6	3	4.75	0.0	0.0
Q	GANDALF TECHNOLOGIES	8	4	4.5	0.0	0.0
Q	GENERAL DATACOMM INDS	9	5	5.625	-0.1	-2.2
N	GTE CORP	48	34	47.25	2.0	4.4
Q	INFOTRON SYS CORP	14	8	8.5	-0.5	-5.3
N	ITT CORP	59	45	57.625	2.0	3.5
N	M A COM INC	11	6	7.75	0.6	8.8
Q	MCI COMMUNICATIONS CORP	34	18	33.125	3.0	10.0
Q	NETWORK EQUIPMENT TECH INC	25	14	22.5	-1.8	-7.6
Q	NETWORK SYS CORP	12	8	8.625	-0.5	-5.5
N	NORTHERN TELECOM LTD	20	14	15.375	0.9	6.0
Q	NOVELL INC	35	18	32.75	0.1	0.4
N	NYNEX CORP	75	61	74.625	2.8	4.0
N	PACIFIC TELESIS GROUP	36	27	27.375	1.3	5.5
A	PENRIL CORP	8	4	6.125	0.6	10.8
N	PLESSEY PLC	46	25	44.25	0.3	0.6
N	SCIENTIFIC ATLANTA INC	18	10	15.875	0.5	3.4
N	SOUTHWESTERN BELL CORP	47	34	46.5	2.3	5.1
Q	3COM CORP	28	18	25.5	-1.5	-5.6
N	U S WEST INC	64	51	63.625	0.9	1.4

Computer Systems

EXCH		52-WEEK RANGE (1)		PRICE CLOSE APRIL 19, 1989	WEEK NET CHNGE	WEEK PCT CHNGE
Q	ALLIANT COMPUTER SYS	6	2	4.25	0.8	21.4
Q	ALPHA MICROSYSTEMS	8	5	5.75	0.0	0.0
Q	ALTOS COMPUTER SYS	10	6	6.75	-0.4	-5.3
A	AMDAHL CORP	28	16	19.25	1.6	8.2
Q	APOLLO COMPUTER INC	17	7	16.875	0.1	1.0
Q	APPLE COMPUTER INC	48	34	40.875	2.4	6.2
N	BOLT BERANEK & NEWMAN	16	8	6.875	-0.6	-8.3
Q	BRITTON LEE INC	4	2	2.75	0.0	0.0
N	COMPAQ COMPUTER CORP	82	47	81.125	5.4	6.5
Q	COMPUTER AUTOMATION INC	12	3	3.75	0.1	3.4
N	CONCURRENT COMP CORP	6	4	4.5	0.1	2.8
N	CONTROL DATA CORP	28	18	21.5	-0.5	-2.3
Q	CONVEX COMPUTER CORP	11	7	10.125	-0.3	-2.4
N	CRAY RESH INC	66	53	56.625	3.4	6.5
Q	DAISY SYS CORP	12	4	4.375	-0.1	-2.8
N	DATA GEN CORP	25	14	19.5	0.0	0.0
N	DATAPOINT CORP	6	4	3.5	-0.1	-3.4
Q	DELL COMPUTER CORP	12	7	7.875	-0.1	-1.6
N	DIGITAL EQUIP CORP	122	88	99	1.6	1.8
N	FLOATING POINT SYS INC	4	2	3.875	0.0	0.0
N	HARRIS CORP	31	25	28.75	0.3	0.9
N	HEWLETT PACKARD CO	64	44	54.875	3.4	6.6
N	HONEYWELL INC	77	57	73.375	2.8	4.1
N	IBM	131	108	112.375	1.3	1.1
Q	INFORMATION INTL INC	16	12	15.25	0.3	1.7
Q	IPL SYS INC	7	1	6.125	-0.3	-3.9
N	MAI BASIC FOUR INC	21	7	7.75	-0.5	-6.0
N	MATSUSHITA ELEC INDL LTD	218	180	175	-3.0	-1.6
Q	MEGADATA CORP	3	1	1.438	0.1	8.5
Q	MENTOR GRAPHICS CORP	38	23	37.625	1.4	3.8
N	NBI INC	8	1	2	0.6	45.5
N	NCR CORP	70	51	58.125	-0.1	-0.2
N	PRIME COMPUTER INC	21	12	18.5	-0.3	-1.6
Q	PYRAMID TECHNOLOGY	20	11	14.75	1.6	12.5
Q	SILICON GRAPHICS CORP	25	14	18.25	-0.4	-2.4
Q	STRATUS COMPUTER	32	21	26.875	0.4	1.6
Q	SUN MICROSYSTEM INC	21	12	17.75	-0.1	-0.7
Q	SYMBOLICS INC	2	1	0.813	0.0	0.0
Q	SEQUENT COMPUTER SYS INC	27	14	26.375	0.1	0.5
N	TANDEM COMPUTERS INC	21	12	15.875	-0.1	-0.8
N	TANDY CORP	49	35	45.25	1.8	4.0
N	ULTIMATE CORP	16	6	9.75	0.5	5.4
N	UNISYS CORP	28	25	26.625	0.0	0.0
A	WANG LABS INC	12	6	8	0.0	0.0

Software & DP Services

EXCH		52-WEEK RANGE (1)		PRICE CLOSE APRIL 19, 1989	WEEK NET CHNGE	WEEK PCT CHNGE
Q	ADVANCED COMP TECH	4	1	2.625	-0.1	-4.5
Q	AMERICAN MGMT SYS INC	18	12	14.25	-2.4	-14.8
Q	AMERICAN SOFTWARE INC	24	12	23.375	0.6	2.7
N	ANACOMP INC	12	5	5.875	0.1	2.2
Q	ANALYSTS INTL CORP	18	7	18.25	0.8	4.8
Q	ASHTON TATE	29	19	21	1.8	9.1
Q	ASK COMPUTER SYS INC	18	12	16.125	0.4	2.5
Q	AUTODESK INC	35	23	33.5	1.4	4.3
N	AUTO DATA PROCESSING	42	35	39.875	1.3	3.2
Q	BMC SOFTWARE INC	18	6	18	-0.5	-2.7
Q	BOOLE & BABBAGE INC	18	8	18	1.5	9.1
Q	BUSINESSLAND INC	15	9	10.5	0.0	0.0
N	COMPUTER ASSOC INTL INC	40	34	38.75	3.8	10.7
Q	COMPUTER HORIZONS CORP	12	7	8	-0.1	-1.5
N	COMPUTER SCIENCES CORP	59	38	50.75	0.3	0.5
Q	CORPORATE SOFTWARE	15	8	12.5	2.3	22.0
N	COMPUTER TASK GROUP INC	17	10	14.375	0.1	0.9
Q	COGNOS INC	8	5	7.625	-0.1	-1.6
Q	COMSHARE INC	29	10	29	1.0	3.5
N	CULLINET SOFTWARE INC	8	4	4.875	-0.6	-11.4
N	GENERAL MTRS (CLS E)	48	37	47.125	1.3	2.7
Q	HOGAN SYS INC	7	2	6	-0.2	-3.0
Q	INFORMIX CORP	25	7	11.375	0.4	3.4
Q	INTELLICORP INC	4	2	3.875	0.3	8.8
Q	KEANE INC	38	6	33.5	-4.0	-10.7
Q	LEGENT CORP	24	18	23.5	2.5	11.9
Q	LOTUS DEV CORP	25	18	22.5	1.8	8.1
Q	MANAGEMENT SCI AMER	14	8	10.25	0.1	1.2
Q	MICRO PRO INTL CORP	8	2	2.25	0.0	0.0
Q	MICROSOFT CORP	71	45	54.875	6.8	14.0
Q	NATIONAL DATA CORP	31	18	30.375	1.3	4.3
N	ON LINE SOFTWARE INTL INC	11	4	8.5	0.3	4.0
Q	ORACLE SYS CORP	28	15	27.5	1.3	4.8
N	PANSOPHIC SYS INC	17	12	15.875	-0.4	-2.8
Q	PHOENIX TECHNOLOGIES INC	18	12	16	1.0	7.1
Q	POLICY MGMT SYS CORP	27	21	26.25	1.0	4.0
Q	PROGRAMMING & SYS INC	18	10	17	-0.5	-2.9
Q	RABBIT SOFTWARE INC	3	2	1.75	0.0	0.0
Q	RELATIONAL TECHNOLOGY INC	21	10	10.125	-4.9	-32.5
N	REYNOLDS & REYNOLDS CO	31	17	30.5	0.8	2.5
Q	SEI CORP	22	16	17	0.4	2.5
Q	SHARED MED SYS CORP	25	14	18.75	0.8	4.3
Q	SAGE SOFTWARE INC	10	6	8.25	-0.1	-1.5
Q	SOFTWARE PUBG CORP	27	15	24	1.3	5.5
A	STERLING SOFTWARE INC	8	6	6.125	0.4	6.5
Q	SUNGARD DATA SYS INC	20	13	14	-0.3	-1.8
Q	SYSTEMATICS INC	37	26	26	0.0	0.0
N	SYSTEM CENTER INC	21	12	19.75	-0.3	-1.6
N	SYS. SOFT INC	28	6	21.5	-0.3	-1.1

Semiconductors

EXCH		52-WEEK RANGE (1)		PRICE CLOSE APRIL 19, 1989	WEEK NET CHNGE	WEEK PCT CHNGE
N	ADV MICRO DEVICES INC	17	7	8	0.0	0.0
N	ANALOG DEVICES INC	16	10	11.25	0.5	4.7
Q	ANALOGIC CORP	10	6	9.25	-0.4	-3.9
Q	CHIPS & TECHNOLOGIES INC	20	11	17.25	1.3	7.6
Q	INTEL CORP	37	19	29.5	0.5	1.7
Q	LSI LOGIC CORP	14	6	11.5	0.8	7.0
Q	MICRON TECHNOLOGY INC	28	16	19.25	1.0	5.5
N	MOTOROLA INC	55	26	46.625	1.3	2.8
N	NATL SEMICONDUCTOR	15	7	7.875	0.0	0.0
N	TEXAS INSTRS INC	51	25	41.25	1.3	3.1
A	WESTERN DIGITAL CORP	17	11	13.25	0.3	1.9

Peripherals

EXCH		52-WEEK RANGE (1)		PRICE CLOSE APRIL 19, 1989	WEEK NET CHNGE	WEEK PCT CHNGE
Q	ALLOY COMP	4	3	3.5	0.3	11.1
N	AM INTL INC	6	2	5.875	-0.1	-2.1
Q	AST RESH INC	17	7	8.5	0.3	3.5
Q	AUTO TROL TECH CORP	6	4	4.812	-0.2	-3.7
Q	BANCTEC INC	14	6	13.5	0.4	2.8
Q	CIPHER DATA PRODS INC	11	6	9.75	0.1	1.3
A	COGNITRONICS CORP	6	2	4	0.1	1.6
Q	CONNOR PERIPHERALS	10	7	9.125	1.5	18.6
A	DATAPRODUCTS CORP	18	6	17.25	0.0	0.0
A	DATARAM CORP	9	7	8.625	0.1	1.5
N	EASTMAN KODAK CO	50	39	47.375	1.6	3.5
Q	E M C CORP MASS	14	2	3.5	0.1	3.7
Q	EMULEX CORP	12	6	10.875	-0.5	-4.5
Q	EVANS & SUTHERLAND	20	13	18.25	0.6	3.5
Q	ICOT CORP	4	2	2.75	-0.1	-4.3
Q	INTERLEAF INC	16	6	6.75	-0.5	-7.8
Q	IOMEGA CORP	5	2	2.438	0.0	0.0
Q	LEE DATA CORP	4	2	2.688	0.1	5.4
Q	MASSTOR SYS CORP	4	2	2.438	-0.1	-4.9
Q	MAXTOR CORP	16	9	10.25	0.5	5.5
Q	MICROPOLIS CORP	25	6	8.625	-0.5	-5.8
Q	MINISCRIBE CORP	14	3	3.875	-0.2	-3.8
N	MINNESOTA MNG & MFG CO	71	57	70.75	3.1	4.6
Q	PERSONAL COMPUTER PRODUCTS INC	7	4	4.438	0.1	2.9
Q	PRIAM CORP	2	1	0.688	-0.3	-26.7
Q	PRINTRONIX INC	11	7	6.625	0.1	1.9
N	QMS INC	12	6	8.25	0.4	4.8
Q	QUANTUM CORP	19	10	16	-0.8	-4.0
N	RECOGNITION EQUIP INC	12	6	8.5	-0.8	-8.3
Q	REXON INC	8	4	6.625	-0.3	-3.6
Q	SEAGATE TECHNOLOGY	21	7	13.375	0.6	4.9
N	STORAGE TECH CORP	4	1	1.625	-0.3	-15.8
Q	TANDON CORP	3	1	0.875	0.0	0.0
N	TEKTRONIX INC	37	18	22	1.0	4.6
Q	TELEVIDEO SYS INC	1	0	0.344	0.0	-8.3
N	XEROX CORP	67	50	64.625	0.6	0.8

Leasing Companies

EXCH		52-WEEK RANGE (1)		PRICE CLOSE APRIL 19, 1989	WEEK NET CHNGE	WEEK PCT CHNGE
Q	AMPLICON INC	20	13	16.25	-0.3	-1.5
N	CAPITAL ASSOCIATES INTERNATIONAL INC	8	4	7.75	-0.4	-4.6
N	COMDISCO INC	36	16	34	1.0	4.3
Q	CONTINENTAL INFO SYS	3	0	0.875	0.0	0.0
Q	LDI CORPORATION	17	10	16.75	0.3	1.6
Q	PHOENIX AMERN INC	5	3	3.125	-0.4	-10.7
Q	SELECTERM INC	8	4	8.75	1.5	20.7

EXCH: N = NEW YORK; A = AMERICAN; Q = NATIONAL

Salvage work

Mediocre earnings reports draw lukewarm reactions

In a week when even the good news on the earnings front often was just a case of making the best of bad times, the stock market responded in kind. There were slight rewards for those who salvaged the quarter.

Digital Equipment Corp. was among the most active stocks after it reported better than expected earnings and closed up ⅝ of a point for a Thursday close of 99⅝. DEC had opened the week at 96. While DEC's earnings were down, the results were still stronger than predicted.

Data General Corp. climbed 1¼ points after earning $7 million on slightly lower sales. However, that profit was inflated by asset sales.

After reporting a loss of $78.7 million, Unisys Corp. slipped ⅜ of a point from Monday to Thursday.

Two companies making news independently of their earnings reports were Control Data Corp., which fell from 22⅝ to 21¼ when it announced cutbacks on Thursday, and Apple Computer, Inc., which dropped ⅛ after adopting a poison-pill measure, although it stayed on the plus side for the week.

JAMES CONNOLLY

CA preps portable applications

BY ROBERT MORAN
CW STAFF

Computer Associates International, Inc. said last week that the next version of its Masterpiece financial software will run on IBM mainframe and midrange computers and Digital Equipment Corp. processors using one set of code that will operate identically in all environments.

The new Masterpiece modules — which will be beta-tested throughout this year and next year and cost about 25% more than its predecessors — include CA-General Ledger, CA-Accounts Payable, CA-Accounts Receivable, CA-Purchasing, CA-Inventory Control and CA-Fixed Assets.

A technology that CA calls Master Host Environment (MHE) will isolate applications from systems dependencies and allow applications to be written once and moved to any of the platforms.

In addition, MHE offers common service utilities for the applications, which gives them a common look and feel and identical functionality, operating characteristics and appearance. CA said the characteristics will speed implementations and reduce the cost of training.

MHE's runtime system, which is written in optimized C and assembler code, separates database and file interfaces, terminal management and central support services from the applications logic, said Sanjay Kumar, CA's vice-president of product planning. The utilities are written for each environment.

Free upgrades

Masterpiece users with active Masterpiece maintenance licenses will receive upgrades to Version 2.0 at no charge.

Both CA-General Ledger for the IBM mainframe and MHE are being beta tested and are slated to be available in September. The IBM Application System/400 version of CA-General Ledger will be beta-tested in the first quarter of 1990; the VAX version will be tested in the third quarter this year.

Other modules for VAX and AS/400 platforms will be tested in the first and second quarters of 1990.

Beta user Stephen Klunck at Channel Homes Centers, Inc. in Whippany, N.J., said that CA-General Ledger's on-line processing capabilities have been greatly expanded, and the batch system has been completely redesigned.

Klunck, who is an associate director of MIS, said he was initially apprehensive because the MHE prohibits the company "from monitoring the batch system as closely as with the current version."

However, "you have to weigh that loss against the benefits of the MHE and the on-line interface," he said. Among the benefits he cited were better on-line report maintenance and navigational techniques for the on-line inquiries.

Despite the software's ability to span multiple platforms with a single set of code, CA will not have an easy task penetrating the "mature financial software market," said Bob Tasker, a vice-president at International Data Corp. in Framingham, Mass.

Nevertheless, Tasker said that CA will be able to leverage its presence in corporations that have a significant investment in other CA products.

"It is not uncommon for large organizations to have a dozen CA products," he said. "Masterpiece will dovetail into CA's systems products — a major selling point for CA."

All data from the present generation of Masterpiece software will automatically be moved into Masterpiece 2.0 files, according to Russell Artz, CA's executive vice-president of research and development.

Regulations

FROM PAGE 1

policies to computer systems.

Joseph E. Collins, director of public affairs at the Data Processing Management Association in Park Ridge, Ill., said the regulations have not triggered any major protests from MIS managers, probably because the regulations are industry-specific and do not affect MIS managers across the board.

MIS managers usually keep track of security and privacy laws that affect them, but they also need to enlist the help of their corporate lawyers and trade associations to monitor other government regulations affecting MIS, Westin said.

Some regulatory programs such as electronic filing are viewed as beneficial because they reduce the paperwork involved in sending reports and taxes to the government. Others, Westin said, fall into the category of "regulatory surveillance," which gives agencies online access to computerized business records for purposes of oversight and investigation.

The Illinois Department of Nuclear Safety, for example, has an on-line computer link with each nuclear power plant in the state. The agency requires 1,750 types of power plant data to be updated every two minutes.

"We were responsible for making the connection feasible," said Paul J. Fenoglio, manager of computer services at Commonwealth Edison Co. in Chicago, but he said the regulation is not burdensome.

At the federal level, the Nuclear Regulatory Commission (NRC) plans to establish a similar program requiring 112 nuclear power plants to transmit real-time data from their computers to the agency's headquarters during nuclear emergencies.

More efficient

Joe Kelliher, legislative programs director at the American Nuclear Energy Council in Washington, D.C., said utilities are not opposed to the NRC's Emergency Response Data System, though they might prefer that it remain voluntary. He said the on-line system will be more efficient than the current procedure.

Utilities are worried, however, that someday they will be faced with several incompatible data links to different federal and state agencies, Kelliher said.

Westin said this kind of online monitoring is increasing, but it can result in good public policy when it protects public safety and does not require the disclosure of confidential data.

On the other hand, he lashed out at a more intrusive regulation proposed last year for New Jersey casinos, calling it "the ultimate Big Brother regulation."

The New Jersey Division of Gaming Enforcement had sought unlimited access to casino computer records, using onsite terminals to make inquiries, with computer audit trails turned off [CW, June 13, 1988]. The 11 Atlantic City casinos fiercely protested the idea, arguing that abuse of the procedure could disclose confidential business data and jeopardize computer security.

In January, the state and the casinos reached an agreement whereby investigators can use the terminals only to review records on gambling customers — not hotel customers or business data — and the audit trail can stay on.

In a similar vein, the U.S. Department of the Treasury recently required casinos to retain computerized records on gamblers for five years. The department expressed high hopes for use of the data in federal investigations.

For example, the Internal Revenue Service could use the computer records to check whether the casino has filed the required reports on cash transactions of $10,000 or more, the agency said.

In the case of MRP systems, regulation was prompted by a headline-grabbing scandal. DOD auditors discovered in 1987 that some defense contractors allowed their MRP systems to overcharge the government by millions of dollars [CW, May 11, 1987]. After a flurry of news reports and hearings, Congress passed legislation requiring the DOD to establish standards for MRP systems to ensure they comply with Pentagon accounting rules.

The DOD issued the proposed standards last October, and a final version of the regulation is expected around May 1, according to Cmdr. Benjamin R. Sellers, a DOD procurement analyst.

The Aerospace Industries Association, based in Washington, D.C., expressed general satisfaction with the proposed standards but said it will fight any further regulation such as "certification" of industry MRP systems.

Certification, which was recommended by the DOD's inspector general, would require contractors to sign a legally binding document stating that their MRP systems comply with Pentagon regulations.

Don't tell

The New Jersey Casino Control Commission has a regulation that actually names the "MIS director" and gives him a specific duty — to keep a secret for at least two weeks.

Casinos are required to provide an on-site terminal so that investigators from the state's Division of Gaming Enforcement can review data about gamblers. However, agents do not want the computer system's audit trail to tip off the casino about who is being investigated.

The regulation states that the "MIS director or his designee shall not make regular daily reports to other casino officials of any information reviewed by division agents [until] 14 days after the division has inspected the computer-stored records."

MITCH BETTS

Piecemeal regulation of MIS

Federal and state agencies are issuing a variety of regulations that have direct effects on parts of the MIS operation, particularly in regulated industries

Industry	Regulation	Comments
Airlines	• Antitrust regulation outlaws display bias in reservation systems.	• Issued in 1984. Enforced by U.S. Transportation Department.
Defense contractors	• U.S. Defense Department has proposed standards for manufacturing resource planning systems.	• Proposal made October 1988. Final rule expected about May 1.
Casinos	• New Jersey casino regulators require an on-site terminal to review player records. • U.S. Treasury Department requires casinos to retain computerized records on customers for five years to aid investigations.	• Compromise reached Jan. 18. Original proposal seeking unlimited access was opposed by casinos. • Final rule issued Jan. 12; effective Feb. 13.
Electric utilities	• Illinois Department of Nuclear Safety requires on-line access to control rooms of all nuclear power plants in the state.	• Ohio and the U.S. Nuclear Regulatory Commission have voluntary programs. New York and Massachusetts legislators and the NRC are considering mandatory programs.
All	• State revenue agencies in Indiana, Idaho and New Mexico require electronic filing of business taxes. • U.S. Securities and Exchange Commission will require public companies to make electronic filings of financial statements.	• Texas, Utah, Colorado, Florida and California expected to follow suit. • Now voluntary. Mandatory in 1993.

CW CHART: JOHN YORK

Kavner finds Unix solution eludes him

BY STANLEY GIBSON
and AMY CORTESE
CW STAFF

Like many statesmen, Robert Kavner wants peace. But he laments his lack of success in achieving it.

In an interview with *Computerworld* last week, Kavner, president of AT&T's Data Systems Group, made plain his regret for the stalemate between Unix International, Inc. and the Open Software Foundation (OSF).

AT&T's Kavner: *would-be peacemaker*

"If I were in charge of the world, I would not have created what happened last year," Kavner said, terming the OSF the "most unlikely alliance in the history of industry."

Despite that lack of success, AT&T last week reported that profits for the first three months of 1989 were $594 million, up 20.6% over the year-earlier period. Revenue increased at a much lower 3.2% rate to $8.4 billion.

Kavner also discussed AT&T's intention to acquire microcomputer products from companies other than its current supplier, Italy's Ing. C. Olivetti & Co., in which AT&T owns a minority interest. He said that Olivetti and AT&T salesmen could not abide by the master agreement previously in effect; thus, the accord was relaxed.

Kavner admitted that AT&T bears some of the blame for the Unix schism. "We created a legitimate problem," he said, referring to changes in AT&T's Unix licensing terms.

Nonetheless, negotiations were so promising between the OSF and AT&T at one point last summer that Kavner had badges made up to admit 12 OSF personnel into AT&T's Summit, N.J., facilities. But talks fell apart last fall when the OSF staff insisted that the Unix kernel be submitted to the open process, to which Kavner could not agree.

Although the battle is over the kernel — either AT&T's Unix System V or IBM's AIX version of Unix — Kavner held out hope that the point may become moot if Unix International, X/Open and the OSF all agree to use the same user interface. "One kernel is ideal but not necessary," said Kavner, adding that AT&T and the OSF are still talking.

Fidelity telecom chief hits the road

BY CLINTON WILDER
CW STAFF

BOSTON — Information systems executive turnover at Fidelity Investments, Inc. continued with the recent departure of top telecommunications executive Jack Garber.

Garber has taken a position at The Yankee Group, a market research firm based here. According to a Fidelity source, Garber was a client of The Yankee Group when be headed the telecommunications division at Wells Fargo Bank NA, the position he held before joining Fidelity in spring 1987.

Although sources within and outside Fidelity reported that Gerber was fired, Fidelity Information Services Co. President Michael Cox said the parting last month was by mutual consent. The decision "related to Jack's style of management vs. a style compatible with Fidelity's environment," Cox said. "We reached a mutual agreement that it might be best for him to pursue other opportunities."

Fidelity's Garber *recently departed for The Yankee Group*

Garber's departure came on the heels of a small exodus of key Fidelity employees to Bankamerica Corp., where former Fidelity Information Services President Michael Simmons is now executive vice-president [CW, July 18, 1988].

In recent weeks, two top Fidelity Telecommunications Co. managers — Kermit Coe, who was second in command to Garber, and Fred Mueller, who served as manager of data engineering — left Fidelity for San Francisco-based Bankamerica.

Sources said Garber's departure was partially related to Fidelity's loss of telecommunications executive talent. Garber could not be reached for comment.

Garber has not yet been replaced. His responsibilities have been taken over on an interim basis by Cox, to whom Garber reported.

Cox said Fidelity has not yet decided whether to hire a replacement or reorganize the telecommunications function and reporting structure.

Wang

FROM PAGE 1

where in the firm is Senior Vice-President Harold P. Ano. He was unavailable for comment.

Although it took less than a year to fold MSD back into the company, Beachum and Fred Wang claimed the division was a success, saying it served to demonstrate Wang's commitment to the personal computer market while testing various distribution alternatives.

Yet Wang's losses were attributed in part to its low-margin PC sales. Also cited were increased discounting of product sales and lower U.S. maintenance revenue. Unit sales and total revenue for the quarter just ended are expected to be about equal to the previous quarter and the third quarter of fiscal 1988.

In the face of strong and at times harsh criticism from financial analysts, Wang said it is committed to the speedy implementation of a previously announced program to cut costs. But Wall Street is getting restless. Investment analysts want Wang to bite the bullet and conduct radical surgery, starting with the sale of Intecom, Wang's private branch exchange subsidiary. Wang said Intecom has little effect on Wang's bottom line.

"I think that some people feel a radical restructuring is always the answer, but they are not around to pick up the pieces afterwards," Fred Wang said.

"I am not an advocate of a major hacking, mainly because we have specific strategies in place from a marketing and product standpoint that we need to support. We are really in a three- to five-year transition mode, moving away from being a general-purpose computer firm to specifically targeting a number of verticals," he said.

Wang *conceded that some layoffs are in the offing*

Analysts scoffed at Wang's insistence that costs can be cut without significant layoffs. "They've got to pull a John Sculley and say, 'We're in trouble,' make some big changes and drop some bodies by 15%," said George Colony, president of Forrester Research, Inc. in Cambridge, Mass.

Some predict it will take Wang three years to turn the company around, even with tough measures. Along those lines, Wang acknowledged that the company's general and administrative overhead were among the highest in the industry, eating up roughly 40% of revenue. He pledged to take those costs down to about 33% in two years and then down to 29% by 1992.

Midrange, mainframe earnings off

Major players vow they'll implement measures to control costs, overhead

BY ALAN J. RYAN
CW STAFF

Growth in the U.S. midrange and mainframe systems markets continued to move at a snail's pace during the last fiscal quarter, resulting in weakened earnings for some of the industry's major players and promises from company officials to control costs and overhead.

Maynard, Mass.-based Digital Equipment Corp. reported sales of $3.1 billion, an increase of 11% over the $2.8 billion it reported in the third quarter last year. Profits, however, dipped to $256.4 million compared with earnings of $305.1 million a year ago.

"There is not much going on in the midrange systems market," said Peter Labe, an analyst at Drexel Burnham Lambert, Inc. (see stories page 90).

"U.S. demand fell below expectations during the quarter," DEC President Ken Olsen said in a prepared statement. Despite the lower earnings, Olsen said, "We are a financially strong company and are continuing our large investment in future product development."

Labe said that while he was not surprised at DEC's performance for the quarter, he has grown "a little more cautious about the following fiscal year."

There were no surprises on Wall Street when Unisys Corp. reported it had lost $78.7 million in its first quarter of fiscal 1989, ended March 31. During the same quarter a year ago, the company reported earnings of $149.3 million. Revenue was $2.2 billion for the most recent quarter, compared with $2.37 billion a year ago.

Michael Geran, an analyst at Nikko Securities Company International, said Unisys is currently going through "the difficult combination of major product transitions plus working down inventory to achieve a half-billion-dollar inventory decline by the fourth quarter."

Unisys Chairman and Chief Executive Officer W. Michael Blumenthal said the corporation expects to be profitable in the second quarter.

"Given the complexity of the problems, progress will be made in the second quarter, but it will not be substantial," Geran forecasted.

At Data General Corp. in Westboro, Mass., sales dropped from $349.7 million last year to $342.7 million for its quarter ended March 25. Earnings dipped from $19.9 million in the same quarter a year ago to $7 million in 1989's first quarter; the earnings in both periods were inflated because of the sale of some of its assets.

Tandem Computers, Inc. in Cupertino, Calif., also reported a drop in earnings. Sales for the second quarter rose to $363.4 million, a 17% increase over the $309.4 million it reported for the second quarter of 1988, but income fell to $16.9 million from $23.3 million a year earlier.

Dallas-based Texas Instruments, Inc. reported that its earnings for the first quarter of 1989 were flat compared with first-quarter earnings last year. Revenue increased to $1.6 billion from $1.5 billion a year ago, while profits were even at $85 million.

Workstation manufacturer Apollo Computer, Inc., which announced April 12 it will be acquired by Hewlett-Packard Co., reported record sales of $204.7 million, up 21% compared with the $168.9 million reported for the same quarter a year ago. Income was $5.5 million, up from $1.3 million

Hungry users to get EMA diet

BY ELISABETH HORWITT
CW STAFF

Digital Equipment Corp. announced last week that it would unveil the first commercial components of its integrated network management system by year's end. However, sources both within and outside DEC indicated that this first release — which may not be ready until mid-1990 — will offer only bare-bones functionality, while full-bodied Enterprise Management Architecture (EMA) is still at least two years away.

At last week's briefing, DEC denied rumors of serious delays in the rollout of EMA. The company will make the following series of announcements this year, according to DEC product marketing manager Elaine Hodgdon:

- The availability dates for commercial products that will provide a complete, if limited, EMA network management system (see chart).
- A framework for migrating DEC's six existing network management products under the EMA umbrella.
- An announcement of several more vendors committed to incorporating EMA support into their networking systems.
- The public availability of the completed Systems Reference Manual, which defines how third parties can integrate their systems into EMA.

A DEC spokeswoman said that it would not be unreasonable to look for the first of these announcements two or three months beyond the original April-to-June time frame that DEC announced at the EMA introduction last fall.

The question still troubling DEC customers and third-party EMA supporters is how quickly the vendor can build on its initial platform to provide the management functionality users need.

Some big DEC shops appear willing to wait for EMA to mature, although they are impatient to see this happen. "We're very interested in EMA and looking forward to seeing products," said Frank Paccione, vice-president of telecommunications at Bankers Trust Co. in New York. The bank uses IBM's Netview to manage IBM systems; it uses DEC products for the DEC side of the house.

"I heard about EMA last winter, but DEC was talking architecture, which is philosophy, not products," said George Billings, who is manager of network and computer operations at a division of Pitney Bowes Corp. in Stamford, Conn. "The proof of EMA will be third parties buying into it."

"It will take a couple of years for EMA to mature," said DEC product marketing manager William Gassman. "We could come out with a product real soon, but it would be really primitive."

One "nut that we've had a hard time cracking," Gassman said, is the development of an object-oriented database management system that can handle a variety of network elements, including voice and data devices, logical sessions, applications and hosts. The initial release will use a standard DEC database product, he added.

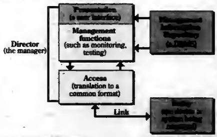
Another key element of EMA that may be years away is the management of telecommunications and voice equipment outside of DEC's expertise, third-party vendors said. Codex Corp., which makes modems and multiplexers, and TSB International, Inc., which makes devices to collect management data from private branch exchanges, have both found DEC receptive to advice on how to integrate those types of equipment into EMA, vendor spokesmen said. However, neither company could say how DEC would provide telecommunications management.

"They can't just waltz into managing physical bandwidth devices like ours and do it as well as we can," said Steven Mank, director of marketing at Codex.

DEC hopes to have third-party supporters develop "function modules" for managing specific types of telecommunications devices, Hodgdon said.

Enterprise building

DEC promises to roll out these basic components of its Enterprise Management Architecture by year's end



SOURCE: DIGITAL EQUIPMENT CORP

CW CHART: FRANK C. O'CONNELL

DB2 difficulties keep older sibling IMS alive

BY STANLEY GIBSON
and JEAN S. BOZMAN
CW STAFF

IMS is IBM's database management system of the past; DB2 is its relational DBMS of the future. But past and future will live side by side for quite some time.

Migrating IMS applications to DB2, despite its attractions, is too problematic for most users to attempt, say users and analysts. What most are opting for, and what IBM identified in a press briefing last week as the appropriate course of action, is to write new applications for DB2 while maintaining current applications under IMS.

Such a course means that some IMS applications will be going strong for the next 10 years or more.

"In selective cases, we are migrating pieces or adding new functionality with DB2. It's hard to justify the expense of wholesale conversion," said Peter Schuchard, associate director of Nynex Services Co. in Boston.

"A lot of people get caught up with DB2 being new and flashy, but people have billions of dollars in IMS code," said Chuck Truax, manager of technical services at Price Waterhouse in Toronto. His firm designs large mainframe applications for users.

Maintaining two DBMSs is costly and resource-consuming, users admitted, but they said they have little choice. No vendor's relational DBMS would be any easier to move to, they said.

"It would take a lot of manpower to convert IDMS to DB2, and there would be no real benefit," said Dick Curry, vice-president of data and communications at Unum Life Insurance Co. in Portland, Maine. Curry said be plans to satisfy new customer needs on DB2 but has no plans to convert from IDMS. "We don't see any convergence between the two indefinitely into the future," he noted.

Fine with IBM

A gradual movement to DB2 is fine with IBM, said Shaku Atre, president of Atre/Computer Assistance, a division of Coopers & Lybrand in Rye, N.Y. "It's not in IBM's interest to move production systems to DB2. If people who have IMS get DB2, they will pay for both," she noted.

IBM has made it plain that new features will be available in DB2 and that DB2 performance will continue to improve. In addition, DB2 is under the IBM Systems Application Architecture umbrella and IMS is not.

Even so, IBM quietly announced IMS/ESA Version 3 Release 1 last fall, which takes advantage of MVS/ESA capabilities. IBM also made it plain last week that more enhancements are forthcoming.

"DB2 and IMS performance will be greatly enhanced by the ESA architecture, and it will continue to go in that direction. We want this DBMS to grow as our 3090 processors grow," said Donna Van Fleet, IBM director of data systems products, during a briefing at IBM's Santa Teresa Laboratory in San Jose, Calif.

Not only will IMS performance be boosted, but its ability to coexist with DB2 will be enhanced as well, Van Fleet promised, acknowledging that IBM's largest customers have said they will continue to use IMS — perhaps for 10 years or more — as the mainstay DBMS for transaction-processing operations.

PS/2 Model 50Z proves too hot for Dbase IV to handle

BY DOUGLAS BARNEY
CW STAFF

TORRANCE, Calif. — If you want IBM's sizzling Personal System/2 Model 50Z and Ashton-Tate Corp.'s hottest version of Dbase, both are available for a price. Just don't try to run them together.

The latest PS/2 Model 50Z is a speedier version of the machine that many users had labeled a dog. It is apparently the speed of the zero-wait state operations that wreaks havoc with Dbase IV, Ashton-Tate said. "We have heard of other problems regarding the 50Z," said spokesman Knox Richardson.

Bill Denton, a software consultant currently automating a cosmetics firm, had the problem on four separate PS/2 Model 50Zs running both PC-DOS 3.3 and PC-DOS 4.0. In each case, his hard disk scrambled, resulting in disconnected sectors and the possible loss of data.

So what is Denton to do? Simple. "I am getting Dbase IV the hell off my machines. I have some very expensive data I don't like having mucked around with," Denton said. He also said that he plans to reformat the hard disks and go back to Dbase III Plus.

According to Richardson, Dbase IV was tested prior to the availability of the Model 50Z. Dbase IV did not ship until October last year, some five months after the availability of the 50Z.

There is no fix coming for 50Z users from Ashton-Tate. "We don't look at it as being an Ashton-Tate problem," Richardson said, adding that the product is not certified to run on the 50Z.

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TRENDS

IBM 370 software

Perhaps one of the worst roadblocks to technological progress is the long time it takes for the public to catch on to new ideas. International Data Corp. (IDC), a market research firm based in Framingham, Mass., recently surveyed senior managers at more than 500 IBM 370 sites to determine their familiarity with and acceptance of new software technologies.

More than three-fourths of the respondents said they understand or are familiar with distributed database management systems. Far fewer said the same of object-oriented DBMSs and work group applications.

This hierarchy seemed to hold for implementation of the technologies as well. Distributed DBMSs are the most widely used and planned, while work group applications, object-oriented DBMSs and reverse-engineering are received skeptically by top management.

IDC also broke out results by the survey respondents' industry segments and ranked each industry on its level of understanding and level of use of each of the technologies. The overall rankings represent cumulative standings among all the software categories in the survey.

Surprisingly, the service and transportation sectors emerged as the most informed users and the most likely to implement new technologies; insurance and banking fared among the worst.

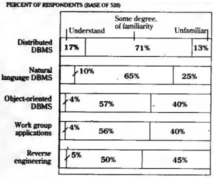
Les Hellenack, an IDC analyst, said he would have expected to see banking and insurance near the top, if not on top. He cited problems with definition of the technologies as a possible cause for the low scores, which further supports the contention that these technologies remain unclear to many MIS executives.

The distributed DBMS category is one example. Although no viable commercial products are available yet, Hellenack said, many respondents may have expressed familiarity with the technology and said they use it because they use a popular relational DBMS. However, he said, these products do not offer real-time updating at multiple locations and, thus, do not fit the distributed definition.

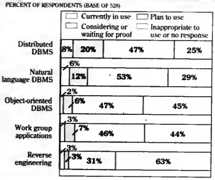
Another case of mistaken identity may have occurred with work group applications. Many users have a local-area network and share networked applications, Hellenack said, but they fail to realize that what they are doing is work group computing.

LAURA O'CONNELL

Users unfamiliar with new technologies



Few have committed to implementation



How individual industries rank

Industry ranking: Familiarity with technologies	Industry ranking: Implementation of technologies
1	3
2	1
3	10
4	4
5	6
6	2
7	9
8	12
9	7
10	11
11	8
12	5

SOURCE: INTERNATIONAL DATA CORP

CW CHARTS: JOHN YORK

INSIDE LINES

Blinded by the light? The departure of Sun Microsystems Executive Vice-President Bernie Lacroute, announced last week, appears to be the result of a long-standing feud between Lacroute and Chairman and Chief Executive Officer Scott McNealy, according to company watchers. "This isn't something that was planned," claimed a source close to Sun. "Bernie and Scott went through cycles — they'd get along and not get along. Scott may say differently, but Bernie's leaving is a real loss — he was the key linchpin in day-to-day execution." McNealy denied that there was trouble between the two.

Reach out and buy someone. AT&T Credit Corp. has quietly bought a 40% stake in Encore International, the Bloomfield Hills, Mich., computer leasing firm founded by former CMI executives. Elsewhere on the leasing front, Sun Microsystems will announce today a pact for Capital Associates and Security Pacific Business Finance to be the exclusive lease finance providers for Sun's entire product line, including its Scalable Processor Architecture (Sparc) workstations.

You think the deficit is bad now? Officials at the White House Office of Management and Budget are worried about a little-known provision of federal privacy laws that could cost Uncle Sam millions of dollars. The provision states that anyone who proves they've been harmed by an illegal computer matching program is entitled to receive at least $1,000 and compensation for legal fees. Because computer matching programs typically cover thousands of names, "agencies should be especially diligent in guarding against actions that would create liabilities," according to OMB computer matching guidelines.

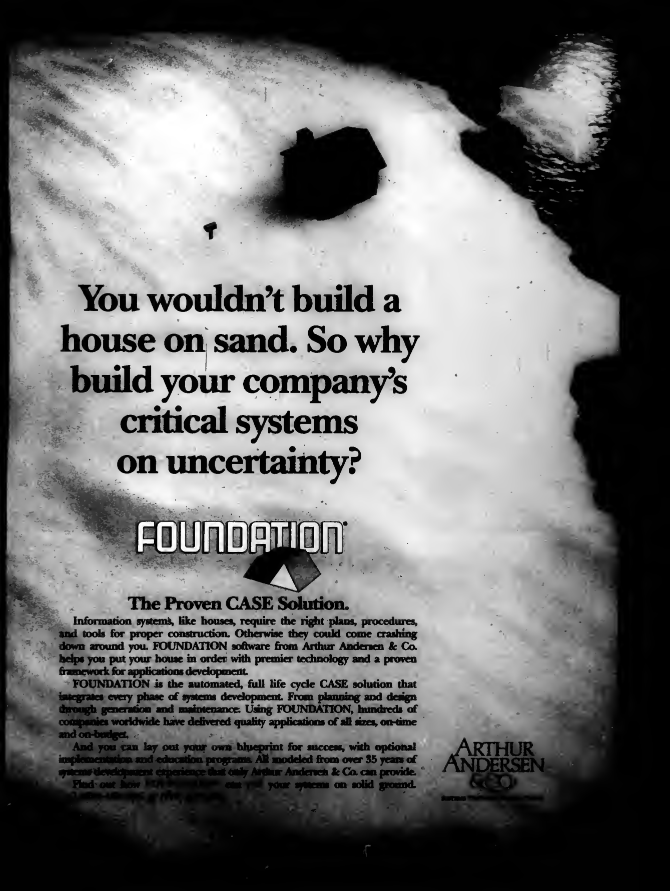
It's all relative. The next time someone bemoans the cost of a personal computer, they may want to consider this: In the Soviet Union, the black market price for an IBM Personal Computer or compatible is $15,500, according to the State Department. Before you put your eyes back in your head, take note of the *official* list price: $30,000. Would-be users don't even blink, we're told.

Spreading Wingz? Look for Microsoft next week to debut a release of Mac Excel, its best-selling spreadsheet for Apple Macintosh. The new version will reportedly overcome the program's 1M-byte barrier, a source of criticism from its users. In addition, the spreadsheet package should be built around the same code used in PC Excel for MS-DOS and a future OS/2 version so that files can be easily transported between systems. Mac Excel has enjoyed an 80% market share, but recently, Informix Systems' Wingz, a spreadsheet with three-dimensional graphics, has threatened a run for the money.

Bus detour. A Seattle start-up is developing a line of workstations based on Sun Microsystems' Sparc, with an interesting twist. These workstations will have a Sparc coprocessor, but its bus will be based on IBM's Micro Channel Architecture (MCA). Farad Azima, chief executive officer for Mission Cyrus Group, said it incorporated MCA because it is less expensive than VME, traditionally used in engineering workstations. Azima said the systems will be able to run both OS/2 and Unix with Open Look.

A raw deal. The Digital Dealers Association, upset over DEC's discounting of new products to compete with the secondary market, has fired off a letter to DEC President Ken Olsen estimating residual value writedowns of more than $1.3 billion on DEC equipment in the first quarter of this year. The association estimates that the average resale value of a used Microvax II has dropped by $5,000, a VAX 8600 or 8650 by $100,000 and the 8500 through 8800 series by $50,000 to $75,000.

Crash, bam, boom! If it sounds like the industry consolidation is taking place right outside your window, turn it off by tuning into the hot line modem at 508-626-0214, -0235 or -0165 and checking out our reader forum. If you'd prefer to interface with the news staff, call News Editor Pete Bartolik at 800-343-6474 or 508-879-0700.



LET THERE BE SAA.
O.K.